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EDITORIAL

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Global Warming and Health Issue

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Global Warming is a familiar term to almost everyone though its meaning is still not clear to most of the people. Global warming in fact refers to the gradual rise in the overall temperature of the earth's surface due to increased amount of Green House Gases (GHGs) in the earth's atmosphere which plays a great role in modifying earth's climate system. Its undesirable effects is extremely harmful to the earth as well as humans. It is very true that global warming is quite challenging to control, but not unmanageable with the will, efforts and undivided attention of all of us. We should keep in mind that the first step in solving any problem is- 'identifying the cause of the problem'. Therefore, we all need to first understand the causes of global warming that will help us proceed further in solving the situation.

Global warming is not happening because of a single cause but several causes which are both natural as well as manmade. Scientists are more than 95% certain that nearly all of global warming is caused by increasing concentrations of Green House Gases and other human caused emissions. Release of greenhouses gases is one of the natural causes. But one of the most common issues contributing to this is man made deforestation. Global warming refers to long term shifts in temperatures and weather patterns. These shifts may be natural but since the mid-19th century, human activities have increased Green House Gases such as carbon dioxide, methane and nitrous oxide in the Earth's atmosphere that resulted in increased average temperature. The effects of rising temperature include soil degradation, loss of productivity of agricultural land, desertification, loss of biodiversity and degradation of ecosystems, reduced fresh-water resources, acidification of the oceans and the disruption and depletion of stratospheric ozone. All these have an impact on human health causing non-communicable diseases such as injuries during natural disasters, malnutrition during famine and increased mortality during heat waves due to complications in chronically ill patients. Direct exposure to natural disasters has also an impact on mental health and although too complex to be quantified, a link has even been established between climate and civil violence. Over time, global warming can reduce agricultural resources through reduced availability of water, alterations and shrinking arable land, increased pollution, accumulation of toxic substances in the food chain and creation of habitats suitable to the transmission of human and animal pathogens. People living in low-income countries are particularly vulnerable. Global warming scenarios include a change in distribution of infectious diseases with warming and changes in outbreaks associated with weather extreme events. After floods, increased cases of leptospirosis, campylobacter infections and cryptosporidiosis are reported. Global warming affects water heating, rising the transmission of water-borne pathogens. Pathogens transmitted by vectors are particularly sensitive to climate change because they spend a good part of their life cycle in a cold-blooded host invertebrate whose temperature is similar to the environment. A global warming presents more favorable conditions for the survival and the completion of the life cycle of the vector, going as far as to speed it up as in the case of mosquitoes. Diseases transmitted by mosquitoes include some of the most widespread worldwide illnesses such as malaria and viral diseases. Tick-borne diseases have increased in the past years in cold regions, because rising temperatures accelerate the cycle of development, the production of eggs and the density and distribution of the tick population. The areas of presence of ticks and diseases that they can transmit have increased, both in terms of geographical extension than in altitude.

Global warming represents one of the main environmental and health equity challenges of our time because the burden of climate-sensitive diseases is the greatest for the poorest populations. For example, the mortality rate derived from vector-borne diseases is almost 300 times greater in developing nations than in developed countries, posing as a significant cause of death, disease burden and health inequity as brake on socioeconomic development, and as a strain on health services. The engagement of the health sector would need to deal with the increasing pollution-related diseases, to extreme weather events and would require to develop knowledge and skills in local prevention/adaptation programs, in order to reduce the costs and burden of the consequences of climate change. Health system needs to strengthen primary health care, developing preventive programs, putting special attention towards the vulnerable communities and regions, encouraging community participation in grass root planning, emergency preparedness, and making capacity to forecast future health risks. To prevent the spread of infectious and vector-

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Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 1-2

borne diseases, it would be necessary to establish an integrated notification network of veterinary, entomological and human survey, with particular attention to avoid the introduction of new human and animal pathogens. Health professionals everywhere have a responsibility to put health at the heart of climate change negotiations. Global warming already has a major adverse impact on the health of human populations, but reducing Green House Gases emissions has unrivalled opportunities for improving public health.

The global warming, that we are presently experiencing have never happened before. Undoubtedly global warming is a big hazard, so appropriate measures must be taken to tackle this serious problem. This problem is not only causing trouble to the human beings but also to animals and plants. As mentioned earlier, it might be challenging but just not unattainable. It can be stopped when combined efforts are put in. For that, steps should be taken from both individuals and governments, towards achieving it. Innovative solutions must be brought forward to end this hazard once and forever to make the earth better again.

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ORIGINAL ARTICLE

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Volume 5 Issue 2 December 2022; 3-6

Retrospective Study on Safety of Long-Term Treatment with Cyclosporin A in Resistant Chronic Plaque Psoriasis

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ABSTRACT

Background: An intermittent short course of Cyclosporin A (CyA) therapy is a good choice in the treatment of severe psoriasis. Some severe or resistant patients might benefit from long-term treatment. The aim of the study is to find out the adverse effects of long-term use of CyA companing the results with the literature.

Materials and methods: This was a retrospective study of adverse effects of CyA treatment in a group of 30 patients suffering from psoriasis. The mean treatment time was 20.2 ± 10.4 months with a minimum of 4 months to a maximum of 48 months, with very few short interruptions of treatment (From 3 to 6 months in two patients).

Results: The group consisted of 15 women and 15 men, ranging in age from 18 to 60 years, with an average age of 40.25 years. Arterial hypertension appeared in 40% of patients during treatment. Pharmacological treatment was required in 30% of these patients to control the condition. Serum creatinine levels were transiently elevated in 13.33% of the cases, but withdrawal of treatment was required in none of them.

Conclusion: Long-term CyA treatment might be necessary in some patients and this study shows that it could be sustained with a close follow-up. This involves regular visits depending on each patient, as well as common test protocol and clinical evaluation. In conclusion, this retrospective study seems to confirm the relative safety of long-term CyA treatment when patients are adequately monitored.

Key words: Adverse effects; Cyclosporin A; Long-term follow-up; Psoriasis treatment.

Introduction

Psoriasis is a chronic relapsing papulo-squamous disease. It appears at unpredictable intervals, under various clinical patterns and surface extension. Patients have a lower self-esteem, and usually have a lower quality of personal and professional life. Different treatments may be applied, but topical ones are usually problematic. Severe cases usually need Ultraviolet A (UVA) or UVB therapy with or without psoralens or other systemic drugs such as retinoids or methotrexate. These treatments may be carcinogenic, teratogenic or even hepatotoxic. The main clinical adverse effects observed in Cyclosporin A (CyA) treatments are hypertension and an impairment of kidney function.[1,2] After CyA was introduced for the treatment of severe cutaneous conditions we started using it with good results.[3–9] Although intermittent treatment of psoriasis with CyA and rotation with other drugs are now generally recommended, we have had the need to treat some psoriasis patients for long periods of time with CyA. Adverse effects of a 4-year experience are described and the results are compared with the literature.

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Materials and methods

This is a retrospective study of 30 psoriasis patients treated with CyA at Combined Military Hospital Chattogram from 2018 to 2021. As it is not a common disease in our county especially in a group like military, we couldn't find large group of patients. So the number of population size is small. All the patients had moderate to severe chronic plaque or erythrodermic psoriasis that had previously been shown to be unresponsive or had shown adverse effects with other systemic therapies such as psoralen plus UVA (PUVA) oral retinoids or methotrexate. The exclusion criteria included: abnormal renal function (Serum creatinine above 10% of the upper limit of the reference range), abnormal liver function (Bilirubin or liver enzymes twice the upper limit of the reference range), hyperkalaemia or hyperuricaemia, a history of malignancy or recent infections, uncontrolled arterial hypertension (Considered when systolic blood pressure was greater than 160 mmHg and/or diastolic blood pressure measured over 90 mmHg on two consecutive occasions) or clinically signi cant impairment of haematopoietic, cardiovascular and/or

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 3-6

cerebral function and concomitant therapy with nephrotoxic medication. All patients had a Psoriasis Area and Severity Index (PASI) score > 13. They were all physically examined before CyA therapy and every 4–8 weeks, involving 8–12 visits per year for each patient. Both blood pressure and body weight were measured in all cases at each consultation. The appearance of adverse effects such as hirsutism, hypertrichosis, tremor, gingival hyperplasia, musculoskeletal pain, paresthaesia, headache, leg cramps, dizziness, abdominal pain, diarrhoea and dyspepsia was also checked. Laboratory monitoring was performed before each visit and included a complete differential blood count and blood chemistry (Serum creatinine concentration, potassium, uric acid, total bilirubin, liver enzymes, triglycerides and cholesterol).

Results

We enrolled 30 patients in this retrospective study. Ages ranged between 18 and 60 years (Mean 40.25 years). The group consisted of 15 women and 15 men. The mean dosage of CyA microemulsion form administered was 3.0 mg/kg/day (1–5 mg/kg/day) and this was adjusted during treatment according to effect and tolerance. The mean treatment time was 20.2 ± 10.4 months (± standard deviation) with a minimum of 4 months to a maximum of 48 months. Treatment interruptions ranged from 3 to 6 months in two patients who were having CyA for 24–36 months. One patient had only one interruption and one patient had three (In the summer of each of the first 2 years of treatment) in 42 months of total treatment time. We have studied the adverse effects that appeared in our patients during a follow-up period that ranged from 1 to 4 years with a median of 2.21 ± 1.5 years. The most commonly observed adverse reaction was arterial hypertension, found in 12 patients (40%) at least once during the follow-up period. Nine of these patients (30%) had been treated for less than 2 years with CyA. Of the hypertensive patients, 30% needed pharmacological treatment. Hypertension score incidence, that is the adverse reaction incidence in each patient depending on treatment time (incidence adverse effect score is the number of patients suffering from the adverse reaction/total number of patients/follow-up time in months or years) was 0.0041 patients per month of treatment. In one patient, a female aged 34 years, CyA was discontinued after she suffered a severe hypertension crisis with syncope. She had been treated with the drug for 30 months and no abnormalities in systolic or diastolic blood pressure and creatinine serum levels were observed during this time. Although we attribute this episode to severe anxiety, further CyA has not been administered to the patient. Other patients (13%) developed a transient increase in plasma creatinine (30% higher than baseline levels) that resolved with a CyA dose reduction. No patients developed persistent increased creatinine levels that required drug discontinuation. Adverse effects are summarized in Table I. In some patients more than one side-effect appeared and an association between high cholesterol and triglyceride levels was observed in two patients (Table II).

Table I Adverse effects observed in this series

Effect	Number	%	Incidence score Patients/Month	Incidence score Patients/year
Hypertension	12	40%	0.0048	0.024
Hyperuricaemia	8	26%	0.0032	0.016
Increased liver enzymes	7	23%	0.0028	0.014
Cramps	6	20%	0.0024	0.012
Hyperkalaemia	5	16%	0.0020	0.01
Increased creatinine levels	4	13%	0.0016	0.008
Increased cholesterol	2	6%	0.0008	0.004
Increased triglycerides	2	6%	0.0008	0.004
Hypertrichosis	2	6%	0.0008	0.004
Hirsutism	2	6%	0.0008	0.004
Gyneacomastia	1	3%	0.0004	0.002
Viral warts	1	3%	0.0004	0.002
Molluscum	1	3%	0.0004	0.002
Basal cell carcinoma	1	3%	0.0004	0.002

Table II Association of adverse effects

Effects	Number	%
Hypercholesterolaemia + hypertriglyceridaemia + hyperglycemia	1	3
Hypercholesterolaemia + leucocytosis	1	3
Hypercholesterolaemia + hypertriglyceridaemia	1	3
Hypertricosis + hypercholesterolaemia	1	3

Discussion

Intermittent short courses of CyA have been recommended to minimize side-effects and to improve the risk–benefit ratio of severe psoriasis treatment.[10–12] There is the need to start patients with the safest therapy that shows benefit in their disease and change to systemic treatments, rotating the different options, only in the more severe or resistant cases. Nevertheless, long-term CyA therapy may be appropriate in some cases and the risks inherent in treatment have to be justified in such patients.[2]

While treating dermatological diseases with CyA, many adverse effects may appear. Nephrotoxicity and arterial hypertension being the most commonly observed.[1,13-19] Arterial hypertension has appeared in 40% of our patients during treatment. Different reports have showed a prevalence range from 29% to 54%.[1,19] Pharmacological treatment was required in 30% of our patients. Gingival hyperplasia has been found as an adverse event among cases treated with both CyA and nifedipine.[20] The patient with gingival hyperplasia in our series was not taking nifedipine.

Neither serum creatinine increase nor a glomerular filtrate decrease has been found in any of our patients was permanent and discontinuation of treatment has not been necessary because of that. Serum creatinine and glomerular filtration rate have demonstrated a reasonably good correlation and are considered a reliable test in assessing chronic nephrotoxicity due to CyA.[21,22] On the other hand, no acute nephrotoxicity, defined as a reversible

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 3-6

increase of serum creatinine > 90% of baseline value, has been found among our patients, as shown in other reports with shorter treatment times.[23] In our study, serum creatinine levels were increased in 13% of the patients. Transient reduction of CyA dose has been recommended, leading to normal creatinine levels in all cases.[24] Alterations in serum creatinine levels have been shown after 12 months of treatment in 35% of the patients and in 70% of them after 36 months.[25] Discontinuation of treatment has been necessary after 12 and 48 months in 14% and 41% of the patients in that report.[25] On the contrary, no persistent increase in serum creatinine levels have been found in a recently published report of nine patients treated with CyA during a 3–4-year period.[26] Moreover, only one case of transient elevation was found and no treatment was required. Only 5% of them required long-term treatment that is more than 3 years. As in our group, none of their patients had experienced such an adverse effect as to require discontinuation of the drug.

The patients' age and adverse effects have not been correlated in our study. CyA-induced hypertension and changes in renal function have been shown to be more frequently experienced by older patients (> 45 years) in some studies but not in others.[23]

Blood pressure measurement, patient weight, blood and urine tests were performed and evaluated every 4–8 weeks in our study. Different follow-up periods have been suggested by several authors [13,26]. In our opinion, adverse effects in CyA treatment may be severe and early detection is needed, so that a 4–8-week follow-up period seems to be adequate.

Based on the study's findings, it was recommended that the CyA be stopped as soon as remission was attained and other therapy modalities might be used to give patients CyA free periods even if no side effects were noticed.

Limitation

The limitations of the study are:

i. It was a single center study with relatively small sample size
ii. Follow-up period was relatively long.

Even if no adverse effects are noticed, the medication should be stopped as soon as remission is reached and other therapy modalities can be used, allowing patients to have periods without CyA.

Conclusion

Long-term CyA treatment might be necessary in some patients and this study shows that it could be sustained with a close follow-up. This involves regular visits depending on each patient as well as common test protocol and clinical evaluation. Obviously, the risk to benefit ratio should be constantly considered. The drug should be discontinued as soon as remission is achieved and other therapeutic modalities can be introduced, allowing patients CyA-free periods, even if no side-effects are observed. In conclusion, this retrospective study seems to confirm the relative safety of long-term CyA treatment when patients are adequately monitored.

Disclosure

All the authors declared no competing interest.

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Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 3-6

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ORIGINAL ARTICLE

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Urinary Bladder Outlet Obstruction : A Cross-Sectional Study of Aetiologies in a Referral Hospital

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ABSTRACT

Background: Urinary Bladder outlet obstruction (BOO) is a very commonly encountered problem in general surgery and urology. Early identification of the problem and timely treatment can prevent many complications, whereas study of the causes of the problem can help all practitioners to evaluate and establish diagnosis. Purpose of the study is to aid in adopting a stepwise approach in the evaluation of commonly found causes of Bladder Outlet Obstruction (BOO) to initiate efficient diagnosis and timely management.

Materials and methods: This was a descriptive, cross-sectional, hospital-based study involving observation of patients reporting to Out-Patient Department (OPD) and In-patient department (IPD) Department of Surgery, CMH Dhaka during the period May 2016 to September 2016 with urinary bladder outlet obstruction and followed up to the establishment of cause of the obstruction.

Results: Total 300 patient were studied in this study. Benign Enlargement of Prostate (BEP) was the commonest cause (31%) followed by Stricture of Urethra (26%). Among the patients with BEP, 64.52% patients were at 6th and 7th decade of their life. Mean age of patients presented with BEP was 68 year.

The stricture urethra was the next common cause of BOO in this study, comprising 78 patients (26%) most of them (38.46%) are within 51 to 60 year age group followed by the group of 31 to 40 and 41 to 50 years, both equally 26.92%. The mean age of presentation was 48 years.

Conclusion: We concluded that, Benign Enlargement of Prostate (BEP) was the commonest cause followed by Stricture of Urethra. Ruptured urethra, impacted urethral stone, Carcinoma of prostate and Urinary bladder neoplasm are also prevalent in the study population.

Key words: Acute retention of urine; Bladder outflow obstruction; Bladder outlet obstruction; Benign enlargement of prostate; Chronic retention of urine; Stricture urethra.

Introduction

Bladder Outlet Obstruction (BOO) is a very common problem found in general population and is commonly encountered in surgical practice. Patients may present at Emergency with Acute Retention of Urine (AUR) or at Outpatient Department (OPD) with sign symptoms of chronic retention. BOO is one of the extreme catastrophes if not treated appropriately and timely. When considering the causes of Bladder Outlet Obstruction (BOO) it is important to appreciate that BOO results from a variety of etiologies, which may be functional or anatomic. BOO often produces Lower Urinary Tract Symptoms (LUTS) although the degree of LUTS is highly variable and not predictable on the basis of the specific inciting etiology. LUTS symptoms may be predominantly obstructive, Irritative, or often a combination of both. Typically, obstructive symptoms include hesitancy, sensation of incomplete bladder emptying, diminished urinary stream, and post voiding urinary dribbling. Irritative complaints include urinary urgency, frequency of urination, occasional dysuria, and nocturia. Symptoms related to BOO are rarely isolated; often the individual experiencing LUTS presents with a variety of mixed symptoms of obstruction and irritation. BOO may also occur in the complete absence of symptoms and be first identified in the scenario of urinary retention or decompensation of the upper urinary tracts.[1]

BOO in men was generally linked to the prostate. Recent terminological changes have led to the use of Benign Prostatic Obstruction/Enlargement (BPO/BPE) as nomenclature to replace previously used eponyms such as Benign Prostatic Hyperplasia (BPH). Also synonymous with BOO in men is LUTS.[2] The common causes of BOO in men are Benign Enlargement of Prostate (BEP) stricture urethra, ruptured urethra, carcinoma prostate and urinary bladder neoplasm.[1] But in women the causes are different. In woman common causes of BOO are pelvic organ prolapse (Cystocele, rectocele, enterocele, uterine procidentia) genital malignancy (Such as uterine or cervical

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Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 7-10

carcinoma) extra-urinary vaginal masses (Vaginal cysts, Gartner's duct remnants) and urethral pathology (Diverticulum, urethral carcinoma). Gynecologic lesions also may produce BOO inclusive of large ovarian cysts or tumors.[3,4] BOO may also occur during pregnancy due to uterine displacement.[5,6]

When BOO is not timely treated or neglected it may lead to chronic retention, bladder hypertrophy, trabeculation and diverticula formation. Due to the backflow pressure, acute or chronic renal insufficiency or overt kidney failure may occur. Obstruction may lead to nephropathy and urinary concentrating defects. Acute or chronic obstruction may cause Urinary Tract Infection (UTI). Other sequels such as renal calculi, hypertension, and polycythemia are associated with a chronic setting.[7]

Therefore, the aim of this study is to aid in adopting a stepwise approach in the evaluation of commonly found causes of Bladder Outlet Obstruction (BOO) to initiate efficient diagnosis and timely management.

Materials and methods

A descriptive, cross-sectional, hospital-based, study involving observation of patients reporting to OPD and IPD up to establishment of diagnosis along with identification of pathological changes in urinary tract was carried out from May 2016 to September 2016. Total 300 samples (285 males and 15 females) were taken purposively, who presented with LUTS in OPD's and IPD's of Combined Military Hospital (CMH) Dhaka. BOO due to acute trauma, post-operative and instrumental causes were excluded from this study. In each case detail history was taken and relevant routine and special investigation was carried out, all information were noted in preformed structured data collection sheet. All data transferred to Microsoft Excel version 2010. Results were aggregated; mean and percentage were calculated and presented in charts, tables and diagrams.

Results

Table I Distribution of respondents by the causes of Bladder Outlet Obstruction (n=300)

Causes	Frequency	Percentage (%)
Benign Enlargement of Prostate (BEP)	93	31
Stricture Urethra	78	26
Ruptured Urethra	39	13
Impacted Urethral Stone	30	10
Carcinoma Prostate	21	7
Urinary bladder Neoplasm	15	5
Neurogenic Bladder	12	4
Posterior Urethral Valve	9	3
Meatal Stenosis	3	1
Total	300	100%

Commonest cause of bladder outlet obstruction in our study was BEP (31%), followed by stricture urethra (26%) and ruptured urethra (13%) (Table I).

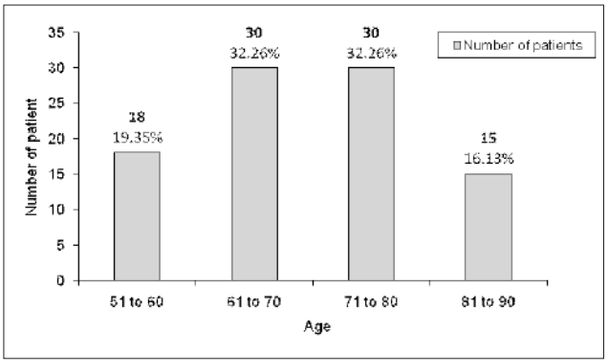

Figure 1 Distribution of respondents by Incidence of benign enlargement of prostate in different age group (n=93)

In this study, total 93 patient had BEP. Among them total 60 (64.52%) patients were in 6th and 7th decade of life. Mean age of patients presented with BEP was 68 year.

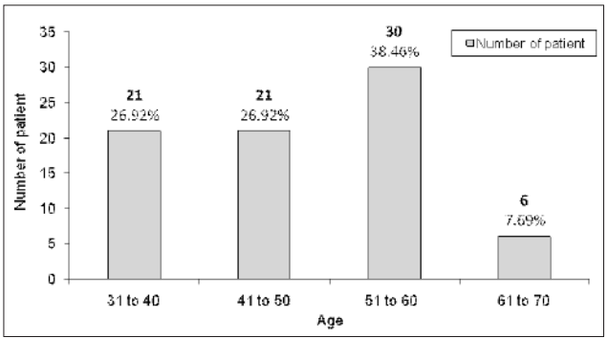

Figure 2 Distribution of respondents by frequency of stricture urethra in different age group (n=78)

Total 78 patients, who presented with BOO due to stricture urethra, were evaluated to find out the cause of stricture. Among them 54 (69.23%) was diagnosed of inflammatory stricture and rests are post-traumatic.

Table II Distribution of respondents by causes of stricture urethra (n= 78)

Causes	Frequency	Percentage (%)
Inflammatory (Urethritis)	54	69.23
Post traumatic (Accidental)	24	30.77

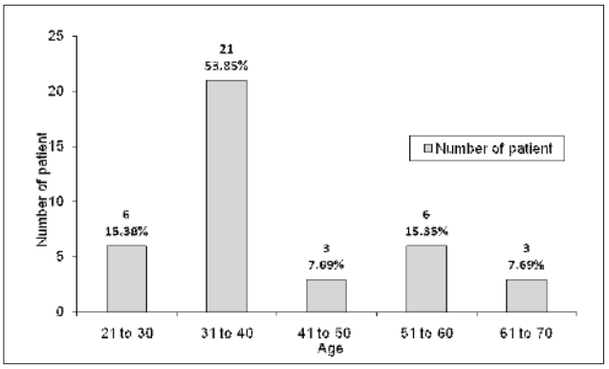

Figure 3 Distribution of respondents by frequency of ruptured urethra in different age group (n=39).

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 7-10

Total 30 patients in our study had impacted urethral stone and the site of urethral stone impaction was in posterior urethra in 18 (60%) respondents.

Table III Distribution of respondents by their site of urethral stone impaction (n= 30)

Site	Frequency	Percentage (%)
Anterior Urethra	12	40
Posterior Urethra	18	60

Discussion

Benign Enlargement of Prostate was found as the commonest cause of BOO in this study (31%) (Table I) among them 64.52% patients were from 61 to 80 years age group. Mean age of patients presented with BEP was 68 years. This findings correlates to the findings published by Dmochowski R R, Alam J and Jahangir A.[1, 8, 9] But Dawson C et al found the mean age of presentation of BEP was 72 years[10].

The stricture urethra was the next common cause of BOO in this study, comprising 78 (26%) patients. Most of them (38.46%) were within 51 to 60 years age group followed by the group of 31 to 40 and 41 to 50 years, both equally 26.92%. The mean age of presentation was 48 years. Results of our study are similar to the findings of Masu S A and Satter A M R.[11,12]

In present study, Ruptured urethra was the 3rd commonest cause of BOO (13%). Where peak age of incidence was from 31 to 40 years (53.85%). The mean age of presentation was 40 years. This can be explained as 30 to 50 years is the most active age and trauma is associated with all this activities.

Most common cause of stricture urethra was inflammatory in nature (69.23%) among 78 patients (Table II) in this series. Rest 24 (30.77%) are post-traumatic (Accidental). Moreover, post-operative stricture urethra was not found in this study. Different findings were seen in the study of Dmochowski R R where stricture urethra was prevailing cause of BOO apart from BEP but the commonest cause of stricture was post-traumatic.[1] But our results are equivocal to the studies of Alam J and Jahangir A, who also found inflammatory disorders are the common cause of stricture urethra.[8,9]

The study of Bhandari et al done at India also showed high incidence (95.30%) of inflammatory urethral stricture at indian subcontinent while Blandy et al found 22.1%.[13,14] Therefore, it varies with study to study according to place, region and socio-economic background of the study population.

In this study 30 patients (10%) had impacted urethral stone (Table III). In the study of Jahangir A found incidence of impacted stone was 14%.[9] Clinical diagnosis was made by urethral palpation and digital rectal examination, with the help of radiological tools. This figure coincides with El Sharif et al.[15]

In present study, 12 (40%) patients had impaction of stone in anterior urethra. Rest 18 (60%) patients had impaction in posterior urethra. In the series of Jahangir A, it was 28.57% and 71.42% in anterior and posterior urethra respectively.[9] Other causes of BOO in this series include carcinoma of prostate (07%) urinary bladder neoplasm (05%) neurogenic bladder (04%) posterior urethral valve (03%) and Meatal stenosis (01%) Similar findings are seen in many published studies.[8, 9,12,16]

Fusco F elaborated their findings in untreated Bladder outlet obstruction and pathological changes that develops in lower urinary tract.[17] Few rare causes of bladder outlet obstruction have been studied by Coguplugil, A.E.[18] In our study, we didn't encounter any of those rare causes. Our study was carried out in a military hospital in the capital city. Which may not reflect the general population of this country, may be considered as a limitation of our study.

Conclusion

In this study, BEP is the major cause of bladder outlet obstruction, which is a age related disease in male. So, there can be a routine screening program arranged for males after the age of 40 years to exclude the prostate dysfunction.

On the other hand, stricture urethra appears after urethritis or urethral injury. These cases of BOO can be predicted from regular follow-up. So this should be advocated to all the cases about the consequence of their disease and timely steps could be taken to prevent BOO and its complications. We can also conclude that, large scale studies will help us to postulate a plan to establish early diagnosis and timely intervention for this commonly occurring disease and it will help us to prevent complications arising from bladder outflow obstruction.

Disclosure

All the authors declared no competing interest.

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ORIGINAL ARTICLE

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Sociodemographic Characteristics and Pattern of Psychiatric Referrals in a Tertiary Care Military Hospital in Bangladesh

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ABSTRACT

Background: Mental health problems are often ignored and unnoticed by patients, their relatives and society. The objective of the study was to find out the pattern of sociodemographic characteristics and psychiatric referrals among patients attending at the Psychiatry Outpatient Department.

Materials and methods: This was a cross sectional study carried out in the department of Psychiatry at Combined Military Hospital (CMH) Chattogram from January 2022 to June 2022. For this purpose, 1297 respondents attending in psychiatry Outpatient Department of CMH Chattogram were enrolled in the study by using convenient sampling technique. Psychiatric diagnoses of the patients were assigned by the consultant psychiatrist as per Diagnostic and Statistical Manual of Mental Disorders-5 (DSM)-5 criteria. Structured questionnaire was used to collect socio-demographic data. Ethical issues were maintained all through the study.

Results: The results showed that majority (26.59%) were from the age group of 31-40 years with female preponderance (59.05%). More than half of the patients were referred from different branches of Medicine (65%). Referral from Internal Medicine was 25.20%, Cardiology 13.0%, Gastroenterology 12.25%, Nephrology 10.56% and Physical Medicine 3.25% respectively. The rest were from branches of Dermatology & Venereology, Surgery, Orthopaedics, Paediatrics and Gynaecology & Obstetrics. The most common psychiatric morbidity among the respondents was depressive disorder (36.93%) followed by anxiety disorders (19.81%), obsessive-compulsive and related disorder (16.34%) and somatic symptom and related disorder (11.33%).

Conclusion: Referrals of patients of psychiatric disorders come mainly from Medicine and allied branches. Results of this study may help in the planning for better mental health service integrated with primary healthcare system of our country.

Key words: CMH; DALY; DSM-5; Psychiatric referral; Sociodemographic characteristics.

Introduction

Health is a state of complete physical, mental, social and spiritual well-being and not merely an absence of disease or infirmity.[1] Behavioral and mental disorders accounted 12% of global burden of disease. It was estimated that 10% of the adult population was suffering from some kind of behavioral and mental disorder globally and it was 4 out of 10 leading cause of disability.[2] Mental disorders are highly prevalent in all regions of the world which causes a significant source of disability and social burden. Treatments for all these disorders are as available as efficacious. However, these disorders are remarkably undertreated worldwide. As per World Health Organization (WHO) more than 25% individuals show one or more mental disorders in their lifetime. Mental and neurological disorders will likely account for 14.4% of all global Disability-Adjusted Life Year (DALY) and 25.4% of non-communicable diseases by 2030. WHO also estimates that one mental disorder member in 1 of 4 families worldwide.[3] Depression is expected to become the leading cause of disability by 2030.[4]

In Bangladesh, prevalence of psychiatric disorder is 16.8%. Out of which Depressive disorder is (6.7%), Anxiety disorders is (4.5%) and Somatic symptom and related disorders is (2.1%). Surprisingly the treatment gap estimated 92.3% and majority are treated by general physicians.[5]

Due to scarcity of epidemiological studies there was limited data on sociodemographic characteristics and pattern of psychiatric referrals. With the world's eighth largest population with 160 million people, extensive research and studies was required to prepare the country to lessen the

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Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 11-14

silent burden of mental disorders. This study was designed with the aim of determining sociodemographic characteristics and pattern of psychiatric referrals which may to mental health awareness among all physicians integrated with primary healthcare system of our country.

Materials and methods

This was a cross sectional study and carried in Psychiatry Outpatient Department (OPD) of Psychiatry at Combined Military Hospital (CMH) Chattogram from January 2022 to June 2022. Patients attending Psychiatry OPD of CMH Chattogram were assigned by purposive sampling method, both male and female who gave consent to participate in the study. An informed written consent was taken from each participant of the study population by using consent form. In case of minor their legal guardians gave written consent. The patients who were not interested in participating in the study, suffered from acute physical illness and acute confusional state, patients who had visual or hearing impairment to such extent that they could not participate in the study were excluded from the study.

Pre-designed structured questionnaire was prepared to determine the socio-demographic characteristics such as age, sex, residence, education, marital status, family type and etc. Besides pattern of referrals and psychiatric morbidity were also counted in this study.

Statistical analyses were carried out by using the Statistical Package for Social Sciences version 23.0 for Windows (SPSS Inc., Chicago, Illinois, USA). The quantitative observations were indicated by frequencies and percentages. Ethical issues were maintained all through the study.

Finally, Psychiatric diagnoses of the patients were assigned by the consultant psychiatrist as per Diagnostic and Statistical Manual of Mental Disorders-5 (DSM)-5 criteria.[6]

Results

During the study period and after exclusion criteria a total of 1297 respondents agreed to participate in the study. The findings of the study were presented in different tables.

Table I Distribution of the respondents according to age (n=1297)

Age in years	Frequency	Percentage (%)
0-10	93	7.17
11-20	157	12.10
21-30	256	19.73
31-40	345	26.59
41-50	296	22.82
51-60	121	9.32
Above 61	29	2.23

Table II Socio demographic distribution of the study respondents (n=1297)

Sociodemographic variables	Frequency	Percentage (%)
Sex		
Male	531	40.95
Female	766	59.05
Religion		
Islam	1154	88.97
Hindu	110	8.48
Others	33	2.55
Educational level		
Illiterate	51	3.93
Primary	30	2.31
Secondary	110	8.48
SSC	519	40.00
HSC	455	35.08
Graduationandabove	132	10.17
Occupational status		
Service	428	32.99
Business	51	3.93
Farmer	31	2.39
Housewife	477	36.77
Student	227	17.50
Unemployment	83	4.87
Maritalstatus		
Married	1019	78.56
Unmarried	266	20.50
Divorced	12	0.92
Social background		
Rural	523	40.33
Urban	774	59.67

There were 40.95% male and 59.05% female. Most of the respondents were Muslim (88.97%), married (78.56%), reported from urban area (59.67%) and completed SSC education (40.0%). Regarding occupation, highest numbers of respondents were housewives, (36.77 %) service holder (32.99%) followed by students (17.5%) (Table II).

Table III Distribution of the respondents referred by specialists (n=123)

Disciplines	Frequency	Percentage (%)
Internal medicine	31	25.20
Cardiology	16	13.00
Gastroenterology	15	12.25
Dermatology and venereology	13	10.56
Nephrology	13	10.56
Gynaecology and obstetrics	11	8.94
Paediatrics	9	7.31
Otolaryngology	6	4.87
Orthopedics	5	4.06
Physical Medicine	4	3.25

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 11-14

Total 123 patients were referred by doctors of different disciplines and more than half of them (61.01%) were referred by medicine and allied branches. Out of them 25.20% from internal medicine, 13% from cardiology, 12.25% from gastroenterology, nephrology 10.56% and followed by dermatology and venereology (10.56%), from gynaecology and obstetrics 8.94%.

Table IV Distribution of the respondents according to psychiatric disorders (n=1297)

Psychiatric disorders	Frequency	Percentage (%)
Major depressive disorder	479	36.93
Anxiety disorders	257	19.81
Obsessive-compulsive and related disorders	212	16.34
Somatic symptom & related disorder	97	7.47
Seizure disorder	45	3.46
Intellectual disability	45	3.46
Bipolar and related disorder	38	2.92
Schizophrenia spectrum disorder	35	2.69
Autism spectrum disorders	27	2.08
Post traumatic stress disorder	22	1.69
Attention deficit / hyperactivity disorder	14	1.07
Substance related disorder	13	1.00
Functional neurological symptom disorder	13	1.00

The most prevalent DSM-5 diagnosis was depressive disorder (36.93%) followed by Anxiety disorder (19.81%), Obsessive- compulsive and related disorders (16.34%), Somatic symptom and related disorder (7.47%) and others.

Discussion

In this study, it was found that among respondents, highest percentage (26.59%) had age between 31-40 years. It is comparable with the study done in our country.[7] In our study, majority of the respondents were female (58.7%) which is similar to findings from other studies.[7,8,9] It might be due to biological (variations in hormonal influence), psychological and social factors. Moreover, unequal status of woman may make them more vulnerable to depression.[10] Education level of this study showed maximum 40.0% respondents were up to secondary level. It correlated to study by Algin et al.[11] It indicated that mental health awareness are increased among literate people.

In present study majority 36.77% respondents were housewives. This findings commensurate with several studies.[7,8,11,12] This pattern might be the reflection of the socio-cultural suppression and somatization of the mental problems of the unemployed females.[8]

Marital status of our respondents shows 78.56% married, 20.50% unmarried and 0.92% divorced cases. Other studies done in Bangladesh, Nepal and America also commensurate with this study.[8,13,14]

This study found that majority 59.67% respondents were from urban background. Similar finding was reported by Algin et al.[11] Location of hospital in commercial city made those more accessible for urban population group.

In the present study more than half of the patients have been referred from medicine and allied branches (61.01%) finding comparable to other studies done in Bangladesh and India.[8,11,15-19] The referral is highest from Department of Internal Medicine (25.20%). The reason behind this may be unaware, lack of information about availability of psychiatric services, stigma about psychiatric disorder which lead them to somatize their psychological complaints. Other common sources Cardiology (13%), Gastroenterology (12.25%), Nephrology (10.56%), Dermatology and Venereology (10.56%), Gynaecology & Obstetrics (8.94%), Paediatrics (7.31%) and Otolaryngology (4.87%) which was consistent with other study.[7]

Major Depressive Disorder (MDD) was the most common psychiatric diagnosis found in this study i.e. 36.93%, which was similar to other studies.[7,8] Depression is one of the major causes of health burden worldwide affecting approximately 264 million people.[20] In Bangladesh, it is the most common psychiatric diagnosis affecting 6.7% population.[5]

Rests of the disorders were Anxiety disorders (19.81%) Obsessive-compulsive disorder (16.34%), Somatic symptom and related disorder (7.47%) and so on. Another study conducted by Firoz AHM et al. also showed that among all psychiatric disorders, depressive disorders are highest in number in Bangladeshi population.[21]

Limitations

There are few limitations of the current study including short duration and only entitled military and civil personnel were included in this study. So, study population might not represent the whole community. Besides, the psychiatric diagnoses were assigned by the consultant psychiatrist as per DSM-5.

Conclusion

Despite a number of limitations, this study provided the baseline information about sociodemographic correlates, prevalence of psychiatric morbidity and patterns of referrals in a tertiary care military hospital of Bangladesh. The prevalence was consistent with the findings of studies done in the Indian sub-continent and other parts of the world as well. If structured interview techniques and standardized rating scales can be used, the reliability and validity of the result were expected to be better. Though this study may enhance for a better comprehensive mental health action plan integrated with primary health care system of our country, still there is scope to increase interaction between psychiatry and medicine and allied branches to enhance overall better patient management.

Holding regular scientific seminars, symposia, rallies among psychiatrists-physicians in different occasions will strengthen cohesion as well as psychiatric presentations of disorders.

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 11-14

Disclosure

All the authors declared no competing interests.

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ORIGINAL ARTICLE

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Intra-Articular, Single Shot Hylan GF 20 Hyaluronic Acid (Synvisc One) and Triamcenalone Acetonide Injection in Osteoarthritis Knee

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ABSTRACT

Background: The knee is the commonest of the large joints to be affected by osteoarthritis. To find out the effect of Hylan GF 20 (Synvisc One) 6 ml in osteoarthritis knee.

Materials and methods: A prospective study was conducted from 1st January 2017 to 31st December 2018 at Popular Diagnostic Center, Shantinagar, Dhaka, Bangladesh. Sixty patients were selected among those who were diagnosed as osteoarthritis knee (Grade 2 & Grade 3) clinically and confirmed by Xray of the affected Knee joint. Intraarticular inj Hylan GF 20 (Synvisc one) 6ml was given in each knee and inj Triamcenalone acetonide 40mg was given before. Pt was followed up after first and fourth week following injection. Only VAS was used to determine the pain intensity. SPSS version 22 was used for data analysis.

Results: In this study total respondents were sixty, among them 66.7% were female. Minimum age of the respondents was 48 yr and maximum age of them was 72 yr. Maximum of the respondents belong to age 58 yr, 60 yr and 64 yr (5 in each). Most of the respondents were household worker (66.7%) followed by official job holder (33.3%). BMI of maximum respondents were found 30 (20%) followed by 28 (15%), although BMI ranges varied from 22 to 40. Maximum respondents were diagnosed Osteoarthritis grade 2 (73.3%) followed by grade 3 (26.7%). Following intervention, VAS score was improved in all patients at first week and that remained static, somewhere found better at fourth week of follow up and that was found statistically highly significant ($p<0.005$).

Conclusion: Hylan GF 20, 6 ml single shot has revealed promising effect on Osteoarthritis knee grade 2 and 3 to ameliorate pain.

Key words: Hylan GF; Knee; OA (Osteoarthritis).

Introduction

Degenerative joint disease becomes much more common in the aged. Arthritis affects over 60% of women and 50% of men who are 70 and older. The reported incidence and prevalence of osteoarthritis varies depending on whether one uses radiologic findings, clinical symptoms or a combination to define cases. For example, limitations in range of motion can go unreported in some instance because the older person might be unaware that range of motion has declined due to its gradual progression. There is strong association with aging, attempts have been made to determine if osteoarthritis is a distinct disease. In osteoarthritis, there are differences in the water content ratio of certain cartilage constituents and an increase in degradative enzyme activity compared with in non osteoarthritis joints. It is possible that the reduction in chondrocyte density with aging leaves cartilage vulnerable to degeneration and osteoarthritis.[1]

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The stresses of weight bearing mainly involve the medial compartment of the knee and it is in this area that primary osteoarthritis usually first occurs. This is an exceedingly common condition, arising without any previous pathology in the joint. Overweight, the degenerative changes accompanying old age, and overwork are common factors. Secondary osteoarthritis may follow ligament and meniscus injuries, recurrent dislocation of the patella, osteochondritis dissecans, joint infections and other previous pathology. It is seen in association with knock knee and bow leg deformities, which throw additional mechanical stresses on the joint. In OA the articular cartilage underwent progressive change, flaking off into the joint and thereby producing the narrowing that is a striking feature of radiographs of this condition. The subarticular bone may become eburnated, and often small marginal osteophytes and cysts are formed. Exposure of bone and free nerve endings gives rise to pain and crepitus on movement. Distortion of the joint surfaces is one cause of progressive loss of movement and fixed flexion deformities. Treatment is generally conservative, by quadriceps exercises, short wave diathermy, analgesics and weight reduction. Surgery may be considered in severe cases. The procedures available include joint replacement, osteotomy, arthrodesis.[1,2]

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 15-18

The knee is the commonest of the large joints to be affected by osteoarthritis. Underlying all of the above mentioned causes, there may also be a genetic component. Curiously, while the male: female distribution is more or less equal in white (Caucasian) peoples, black African women are affected far more frequently than their male counterparts. Osteoarthritis is often bilateral and in these cases there is a strong association with Heberden's nodes and generalized osteoarthritis. In advanced cases the articular surface may be denuded of cartilage and underlying bone may eventually crumble. Chondro-calcinosis is common, but whether this is cause or effect or quite unrelated remains unknown.[3]

Hylan G-F 20 is derived from rooster comb Hyalorunan (HA). At the time of writing, eight visco supplement hyaluronic products are licensed in Canada. Hylan GF 20 is distinguished from the other products by its chemical structure (i.e cross linked hyaluronan, hence hylan) and relatively higher molecular weight, which may bestow greater therapeutic viscoelastic properties. A complete treatment cycle of hylan G-F 20 involves an intra articular injection of 2 ml of hylan G-F 20 once a week for 3 weeks. It is licensed for use for patients in all stages of joint pathology, but should not be used in infected or severely inflamed joints, in joints with large effusion, in patients that have skin diseases or infections in the area of the injection site, or in patients with venous stasis. It is also contraindicated in patients with hypersensitivities to avian proteins.[4]

Materials and methods

This was a prospective study conducted in between 1st January 2017 to 31st December 2018. Purposive sampling was done among OA knee (Grade 2 and 3) attending chamber at Popular diagnostic center, Shantinagar, Dhaka, diagnosed clinically and confirmed by X-ray of affected knee joint both antero-posterior view on standing and lateral view. Data were collected by face to face interview with preformed questionnaire and physical examination done during first and follow up visits. Analysis was done by using SPSS 22 software. Descriptive statistics was used for data analysis. The results were presented with the use of simple percentage (%). The collected data were illustrated with bar chart and pie charts. Chi square test was done to find the associations between variables. Paired 't' test was done for comparison of pain intensity before and after intervention.

Results

In this study, the total respondents were sixty, among them 66.7% were female and 33.3% were male. Range of the respondent's age varied from 48 to 72 years. Minimum age of the respondents was 48 yr and maximum age of them was 72 yr. Maximum of the respondents belong to age 58 yr, 60 yr and 64 yr (5 in each). Most of the respondents involved in household work (66.7%) followed by official work (33.3%). BMI of maximum respondents were found 30 (20%) followed by 28 (15%), although BMI ranges varied from 22 to 40. Maximum respondents were diagnosed Osteoarthritis grade 2 (73.3%) followed by grade 3 (26.7%). Significant relationship was found in between OA grade and age (p= 0.018), sex (p=0.026) and occupation (p=0.00) but insignificant (p=0.266) with BMI. Significant relationship were found in between VAS before intervention and Age (p= 0.045), occupation (p= 0.013), OA grade (p= 0.00), BMI (0.014) but slightly non significant between sex (p= 0.056). Following intervention, highly significant improvement of pain was found after first week (p< 0.005) and that remained at fourth week of follow up (p< 0.005).

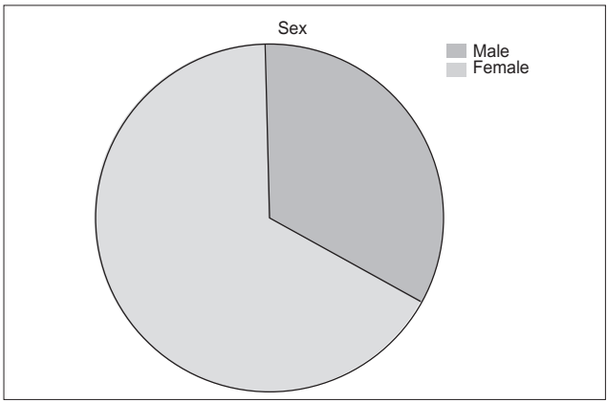

Figure 1 Sex of the respondents

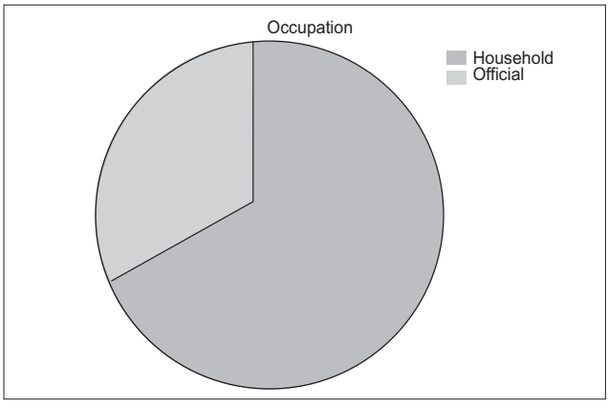

Figure 2 Occupation of the respondents

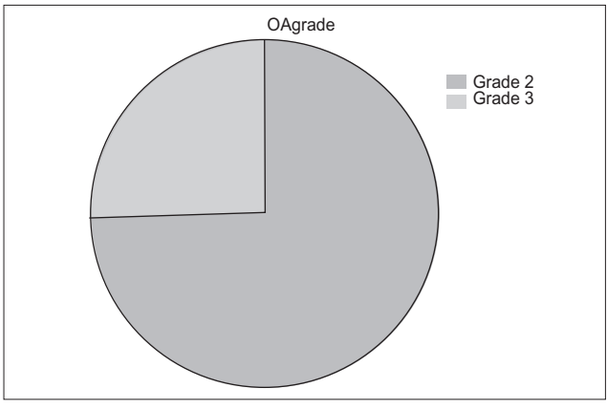

Figure 3 Osteoarthritis grading among the respondents

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 15-18

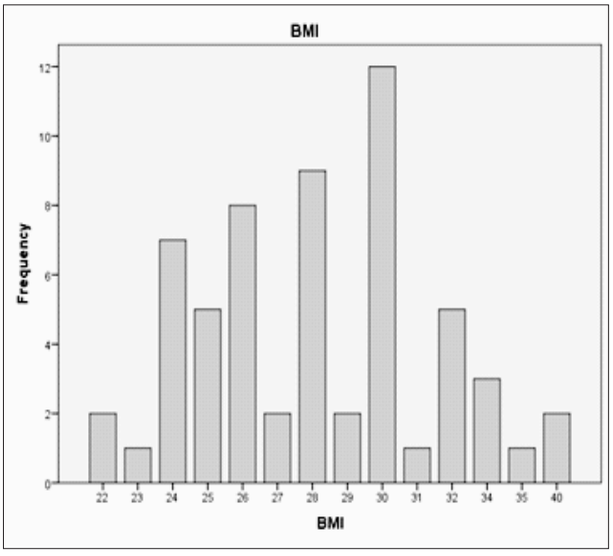

Figure 4 BMI of the respondents

Discussion

Osteoarthritis constitutes a growing public health burden and the most common cause of disability in the United States like our country.[5]

This study revealed that osteoarthritis of knee joint is common among fifth decade, although it may be occurred at any age and increases with aging that is similar to our study and other studies.[6,7,8] Prevalence is found more among female (66.6%) compared to male (33.3%) in this study that is similar to most other studies.[9,10] Prevalence and intensity of osteoarthritis knee pain is more among household worker (66.7%) in comparison with official desk worker (33.3%) that is similar in other study.[10] Prevalence of OA knee is more among obese patients (BMI >30) in our study that is similar to other studies.[11,12,13]

In this study only VAS is considered as a parameter to assess intensity of pain before and after intervention as well as during subsequent follow up that is different in most other studies where WOMAC score is considered as an important parameter of assessment in addition to VAS.[9,14] There is insignificant relationship found between obesity and OA grading (p = 0.266) that is similar in some studies and different in one study.[11,12,13,15] Significant relationship is found in between OA grade and age (p= 0.018), sex (p=0.026) and occupation (p=0.00) that is similar in other studies. There is obvious improvement found after intervention and that is statistically highly significant remain static up to 4th week of follow up that is similar to most other studies.[14, 16, 17]

Limitation

Follow up for a longer period at least six months after intervention can be done to explore it's prolonged efficacy. Sample size is small and WOMAC score might be included as an assessment tool.

Conclusion

Hylan G- F 20 (6ml) single shot is effective with a favorable safety profile for OA knee and it can be used in routine clinical practice in OA grade 2 and grade 3. In an effort to limit cardiovascular, gastrointestinal and renal safety concerns with COX-2 selective and non selective NSAIDs and maximize HA efficacy using HA earlier in the treatment is beneficial and also a part of a comprehensive treatment strategy for OA knee.

Disclosure

The author declared no competing interests.

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ORIGINAL ARTICLE

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Sedation during Spinal Anaesthesia for Elective Caesarean Section : Comparison between Midazolam and Propofol

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ABSTRACT

Background: *Regional anaesthesia has become an important anaesthetic technique now a days. The use of spinal anaesthesia is often limited by the unwillingness of patients to remain awake during surgery. Pharmacologically induced tranquility improves acceptance of regional technique. This study compares midazolam and propofol in terms of onset and recovery of sedation, haemodynamic effects and adverse effects of both the drugs during elective Caesarian section under spinal anaesthesia.*

Materials and methods: *This prospective randomized clinical study included 60 ASA grade I patients between age 20-40 years underwent elective caesarean sections under Subarachnoid anaesthesia during the period January 2022 to June 2022. Patients were randomly allocated to one of two groups: Midazolam group (Group M, n=30), who received midazolam in a single dose of 0.01mg/kg and Propofol group(Group P, n=30), who received propofol in a single dose of 0.5mg/kg. Spinal anaesthesia was conducted by injecting a hyperbaric solution of 0.5% bupivacaine 3ml through a 25G spinal needle at L3-4 level. All parameters were documented at 5 min intervals until arousal of the patient. The onset of sedation i.e. time from IV (Intravenous) injection of midazolam or propofol to closure of eye lids and the arousal time from sedation i.e. time from closing of the eye lids to OAA/S score of 5 (Patient is awake clinically) were noted. Any complication during operation was documented. The patient's satisfaction with the sedation was assessed by the 5 point 'Likert-like verbal rating scale'*

Results: *There was significant fall in mean arterial pressure in Propofol group immediately after drug administration. There was significant rise in mean heart rate in Propofol group immediately after drug administration. Time for onset of sedation and arousal from sedation were significantly less in Propofol group. Significant number of patients was satisfied with Midazolam than Propofol.*

Conclusion: *Midazolam provides longer duration of sedation and more haemodynamic stability than Propofol in single dose technique during spinal anaesthesia. Moreover, incidence of pain in arm during injection is significantly less with Midazolam than Propofol. Thus it is recommended that Midazolam is a much better choice than Propofol in single does technique for sedation during subarachnoid block for Caesarean section.*

Key words: Midazolam; Propofol; Sedation; Subarachnoid anaesthesia.

Introduction

Spinal anaesthesia is the method of choice for elective caesarean section. It allows mother to be involved in the child's delivery but also exposes them to awareness related stress during the procedure. The stress intensity is higher in women undergoing a Caesarean section compared with women delivering spontaneously.[1] The use of pharmacological sedation after extraction of the foetus by Caesarean section under Subarachnoid anaesthesia is useful in some patients e.g. those presenting with high stress. Enhanced stress can result from poor foetal health after delivery, discomfort associated with immobilization on the operating table, chills that accompany anatethesia, nausea and vomiting.[2]

Sedation is a valuable tool to provide general comfort for the patient. Over sedation may jeopardize the safety of the patient. While levels of sedation progress in a dose response continuum, it is not always possible to predict precisely how an individual patient will respond to a particular dose.[3] Oversedation may be associated with untoward effect of respiratory and cardiovascular depression resulting in higher chances of airway instrumentation and hypotension leading to a prolonged stay in the post anaesthetic care unit, entailing increased burden on staff, bed availability and associated costs.[4,5] Thus judicious use of sedation can make surgeries under spinal anaesthesia more comfortable for the patient, the surgeon and the anaesthesiologist. As a result, it can increase the patient's acceptance of regional anaesthetic technique.[6]

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Volume 5 Issue 2 December 2022; 19-23

Midazolam, a short acting benzodiazepine, is frequently used as a sedative during procedures under spinal anaesthesia. It has a property of rapid onset and offset of action after Intravenous (IV) injection. It has the advantage of producing anxiolysis and amnesia.[7] Propofol, a non-benzodiazepine anaesthetic agent, is frequently being used as an IV sedative agent during regional anaesthetic procedures, as it has a quick onset and offset of action with easy arousability. Lower doses of Propofol as sedative also produces amnesia and anxiolysis, but it has the propensity of greater cardiovascular and respiratory depression when used in higher doses.[7]

There are a good number of studies regarding the use of sedative agents during regional anaesthesia but it is scarce in case of caesarian section where a pregnant woman has a lot of anatomical and physiological changes from a non-pregnant lady.The aim of this study was to find out the time for onset and recovery from sedation with Midazolam and Propofol, to evaluate and compare the properties of both drugs in terms of haemodynamics and adverse effects, as adjuncts to spinal anaesthesia.

Methods and materials

This prospective randomized clinical study included 60 ASA grade I patients between age 20-40 years underwent elective Caesarean sections under subarachnoid anaesthesia during the period January 2022 to June 2022. The exclusion criteria were positive history of drug allergies, patients suffering from heart disease, hypertension, diabetes, spinal deformity, neurological disorder, any bleeding disorder and unwilling to accept sedation during spinal anaesthesia. Patients were randomly allocated to one of two groups: Midazolam group (Group M, n=30) who received midazolam in a single dose of 0.01mg/kg and Propofol group (Group P, n=30), who received propofol in a single dose of 0.5mg/kg. A written informed consent was taken from all patients. They were fasted for a minimum of 6 hours before surgery. No preoperative opioid or prophylactic antiemetic were given. No other preoperative medication was allowed. All patients were monitored with electrocardiograph, non-invasive blood pressure and pulse oximeter monitor. Baseline vital parameters were recorded. Preloading was done with 300ml Ringer lactate within 5-10 minutes prior to block. Spinal anaesthesia was conducted by injecting a hyperbaric solution of 0.5% bupivacaine 3ml through a 25G spinal needle at L3-4 level. After spinal block, patients were placed on the operating table in horizontal position. Sedation with Midazolam or Propofol was administered after extraction of the foetus.O2 inhalation by ventimask was given when SpO2 (Arterial oxygen saturation) came down below 90% and vasopressor was given if MAP (Mean arterial pressure) decreased beyond 20% of baseline. MAP was measured continually at 5 min interval and Heart R ate (HR) SpO2 were monitored throughout the surgery. All parameters were documented at 5 min intervals until arousal of the patient. The onset of sedation i.e. time from IV injection of Midazolam or Propofol to closure of eye lids and the arousal time from sedation i.e. time from closing of the eye lids to OAA/S score of 5 (Patient is awake clinically) were noted. Any complication during operation was documented. The patient's satisfaction with the sedation was assessed by the 5 point 'Likert-like verbal rating scale' with some questions like 'where will you put your experience with this sedation on the scale?' in a language which the patient understands, at a point of time when the patient had a mental state suitable for communication.

Observer's Assessment of Alertness/ Sedation (OAA/S) Scale:

Category	Observation	Score Level
Responsoveness	Responds readily to name spoken in normal tone	5
	Lethargic response to name spoken in normal tone	4
	Responds only after name is called loudly and/or repeatedly	3
	Responds only after mild prodding or shaking	2
	Does not respond to mild prodding or shaking	1
	Normal	5
Speech	Mild slowing or thickening	4
	Slurring or prominent slowing	3
	Few recognizable words	2
	Normal	5
Facial expression	Mild relaxation	4
	Marked relaxation (Slack jaw)	3
	Clear, no ptosis	5
Eyes	Glazed, or mild ptosis (Less than half the eye)	4
	Glazed and marked ptosis (Half of the eye or more)	3

Likert Scale for satisfaction:

Data were analysed using Statistical Package for the Social Science (SPSS) for Windows (Version 12.0,SPSS Inc,. Chicago, IL, USA). Independent 't' test was used for age, weight, duration of surgery, time for recovery, heart rate, mean arterial pressure and SpO2 at various time intervals. Chi square test was applied for adverse effects and oxygen supplementation. Paired 't' test was applied for intra-group variation in heart rate and mean arterial pressure. Fischer's exact test was used for incidence of complications. Data were expressed in mean, SD and percentage. $p<0.05$ was taken to be of statistically significant.

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 19-23

Results

In this observational study, 60 patients (30 in each group) were taken. The Group M (Midazolam group) and Group P (Propofol group) were found to be comparable in respect of age, weight, duration of surgery (Time from surgical incision to surgical closure) (Table I).

There was no significant difference in Mean arterial pressure between the two groups before Spinal anaesthesia (Baseline) after spinal block and before sedative drug administration. But there was significant fall in mean arterial pressure in Propofol group immediately after drug administration (Table II).

There was no significant difference in Mean heart rate between the two groups before Spinal anaesthesia (baseline), after spinal block and before sedative drug administration. But there was significant rise in mean heart rate in Propofol group immediately after drug administration (Table III). Mean values of SpO2 remained stable throughout the surgical procedure in both the groups, with no statistically significantaberrations (p>0.5).

Time for onset of sedation was significantly less in Propofol group (p<0.05). Time for arousal from sedation was also significantly less (p<0.001) in Propofol group, which is not beneficial for the patient. Moreover, significant percentage of patient was satisfied with Midazolam than Propofol (Table IV).

Incidence of nausea and vomiting was significantly more in midazolam group. Pain in arm during injection of drug was significantly more in propofol group. Incidence of restlessness was more in propofol group and that of chill in midazolam group. But the difference was not statistically significant (Table V).

Table I Demographic data of the patients under study (n=60)

Variable	Group M (n=30)	Group P (n=30)	P value
Age (Years)	29.33±5.9	28.53±5.4	0.85
Weight (kg)	68.13±8.7	65.53±10.8	0.27
Duration of surgery (min)	48.0±5.1	50.66±5.6	0.15

Values are expressed in mean±SD
SD- Standard Deviation.

Table II Comparison of MAP (mmHg) in study groups at various time intervals (n=60)

Time Interval	Group M (n=30)	Group P (n=30)	p value
Before Anaesthesia (Baseline)	81.7±6.82	83.1±8.54	0.363
After Spinal block	76.8±6.97	75.7±6.47	0.443
Before drug administration	76.1±9.38	74.4±6.41	0.304
After drug administration	75.7±10.41	71.1±7.28	0.020

Values are expressed in mean±SD
SD- Standard Deviation.

Table III Comparison of mean heart rate (bpm) in study groups at various time intervals (n=60)

Time Interval	Group M (n=30)	Group P (n=30)	p value
Before Anaesthesia (Baseline)	77.8±12.97	77.9±12.69	0.945
After Spinal block	86.8±11.97	85.3±11.97	0.557
Before drug administration	79.1±18.82	75.6±12.71	0.557
After drug administration	88.0±8.60	101.5±2.08	0.014

Values are expressed in mean±SD
SD- Standard Deviation.

Table IV Comparison of Sedation characteristics in study groups (n=60)

Variable	Group M (n=30)	Group P (n=30)	p value
Time required for onset of sedation (Eye closure) (min)	2.3±1.10	1.3±0.51	<0.05
Arousal time from sedation in min (OAA/S score of 5)	42.1±7.3	10.3±2.37	<0.001
Satisfaction with sedation (Good)	25 (83.33%)	4 (13.33%)	<0.001

Values are expressed in mean±SD
SD- Standard Deviation.

Table V Incidence of complications in study groups (n=60)

Variable	Group M (n=30)	Group P (n=30)	p value
Nausea and Vomiting	56.66%	26.66%	<0.05
Chills	16.66%	10%	0.549
Restlessness	10%	13.33%	0.24
Pain in arm	0%	26.66%	<0.001

Discussion

Pregnant women underwent elective caesarean sections under subarachnoid anaesthesia are often anxious about the unpleasant experience associated with awareness during surgery. After being informed about the possible use of hypnotics after baby extraction, the patients more eagerly accepted this suggested method of anaesthesia.[2]

The most widely used technique for administering sedation in regional anaesthesia is the intermittent bolus dose technique. This technique has been shown to be associated with peaks and troughs in plasma concentration producing significant side effects and delayed recovery.[8] Continuous infusions have been proved to produce, lesser side effects, faster recovery, easy controllability over the desired depth of sedation but requires some especial equipment e.g. syringe pump, BIS monitor etc, which is expensive and not available everywhere. Moreover, it needs more expertise like interpretation of EEG.[9]

When using sedative medication during regional anaesthesia technique, the anaesthesiologist attempts to titrate the drug to optimize patient comfort while maintaining cardiorespiratory stability and intact protective reflexes. The assessment of depth of sedation has been traditionally performed by observing clinical parameters

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 19-23

such as appearance, response to voice and pain on surgical stimulation. These parameters are qualitative and assessment of response to voice requires patient stimulation, which may itself alter depth of sedation.[10]

We chose the OAA/S scale for assessment of sedation over other scales as it was easier to use, comprehensive and inclusive of parameters such as facial expression and eyelid ptosis in addition to speech and responsiveness, which are not there in other sedation scales.[11] Similarly the OAA/S scale has been shown to have an inter-rater agreement that varies between 85% and 96% depending on the level of sedation, which is higher than most of the other scales used for the same purpose, making it the most suitable choice if precise assessment of sedation is required.[9]

Benzodiazepines via GABAergic receptors produce anxiolysis as well as sedation and anterograde amnesia. Midazolam is the most commonly used drug. It has rapid onset and short duration of action which enables its easy dose titration. Benzodiazepines at higher doses leas to cardiorespiratory depression, so require monitoring.[12] Propofol via Gamma Amino Butyric Acid (GABA) receptors produce sedation, anxiolysis and amnesia in subhypnotic doses. It is associated with faster onset in achieving the desired sedation score and faster offset of sedation leads to less post-operative impairment of recall with clear headed rapid recovery and higher patient satisfaction. Propofol at higher doses leads to hypotension, bradycardia and respiratory depression. In addition, propofol has antiemetic effect which leads to decreased incidence of nausea and vomiting especially during eye surgeries.[13]

Danielak-Nowak et al. conducted a prospective randomized study on 56 pregnant women who were sedated with propofol or midazolam via intravenous infusion after extraction of the foetus. A desired level of sedation was easier to obtain in the propofol group (77.7% vs 55.1%), whereas excessive sedation was noted more frequently in the midazolam group (34.5% vs 11.5%). The mean heart rate and arterial pressure were lower in propofol group. No ECG alteration was observed in any patient. SpO2 was comparable in both the groups. The incidence of nausea and vomiting were higher in the midazolam group. Satisfaction with sedation was comparable in both the groups. They concluded that propofol appears to be more useful for Caesarean section sedation when compared with midazolam because of its shorter action, antiemetic effect and better maternal recall of foetaldelivery.[2] In our study, we used the sedative drugs in a single dose technique where excessive sedation was not noted with Midazolam and duration of sedation with Propofol was inadequate. Mean arterial pressure was also lower in our study but mean heart rate was higher with Propofol. We also noted higher incidence of nausea and vomiting with Midazolam but satisfaction with sedation was much higher with Midazolam than Propofol.

Rasooli et al. conducted a randomized, double-blind, placebo controlled clinical trial on 90 parturients, ASA I & II, aged 20-30 years, who undergone spinal anaesthesia for Caesarean section, randomly allocated to one of three groups receiving midazolam or propofol infusion immediately after umbilical cord clamping and compared to placebo. Bupivacaine hydrochloride (10 mg) was used for spinal anaesthesia. The incidence of nausea, retching and vomiting was significantly higher in the control group compared to propofol and midazolam groups. Overall IONV (Intra Operative Nausea and Vomiting) and PONV (Post-Operative Nausea and Vomiting) in midazolam group was as low as propofol group without any significant haemodynamic changes as seen in placebo group or even with propofol group.[14] In our study, incidence of nausea and vomiting was much higher in Midazolam group compared to Propofol group. Moreover, there was significant haemodynamic changes (Lower mean arterial pressure and higher mean heart rate) with Propofol.

Bagchi D et al. conducted a randomized clinical trial where a total of 110 patients were randomly assigned to receive either propofol or midazolam infusion for sedation during spinal anaesthesia for elective infraumbilical surgeries. The infusion rate was titrated until BIS (Bispectral Index) score 70 was achieved and maintained between 65 and 70. OAA/S was noted at BIS 70 and again at BIS 90 during recovery. The time to achieve OAA/S score 5 was noted. Arousal time from sedation was found lower for propofol group compared to midazolam group (7.54±3.70 vs 15.54±6.93 min respectively, p=0.000). The time taken to reach OAA/S score 5 was also found to be lower for propofol group than midazolam group (6.81±2.54 vs 13.51±6.24 min respectively, p=0.000).[5] In our study, we did not use BIS monitoring due to logistic constraint but we also noted shorter arousal time with Propofol.

Khurana P et al. conducted a randomized clinical trial where 98 patients were randomly divided into two groups for BIS guided sedation during regional anaesthesia. One group received midazolam infusion while the other received propofol infusion until BIS reached 75. They observed time to reach desired sedation, heart rate, MAP, time for recovery, dose to reach sedation and maintenance of sedation and side effect if any. The time to reach required sedation was 11 min in midazolam group while it was 6 min in propofol group (p=0.00). Fall in MAP was greater with propofol. Recovery with midazolam was slower than with propofol (18.6±6.5 vs 10.10±3.65 min) (p=0.00). They concluded that both midazolam and propofol were effective sedatives, but onset and offset was quicker with propofol, while Midazolam was more cardiostable.[10] In our study, we used single dose technique and did not use BIS monitoring but also noted shorter onset and offset with Propofol. We also found that haemodynamics was more stable with Midazolam.

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 19-23

Limitations

The intervention was not placebo controlled and blinded to neither clinicians nor patients. Additionally, group sizes were small. Consequently the clinical relevance remains undetermined and further studies are necessary to confirm potential benefits between the two commonly used sedatives.

Conclusion

The study showed that the time to reach effective sedation was less with Propofol than Midazolam but the arousal time i.e. duration of sedation was much shorter with Propofol than Midazolam which is not beneficial for the patient in single dose technique. Moreover, Propofol caused a greater fall in MAP (Thus providing lesser haemodynamic stability) and high incidence of some adverse effect like pain in arm during intravenous injection than midazolam. Thus it is recommended that Midazolam is a much better choice than Propofol for sedation during subarachnoid block for caesarean section.

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Disclosure

All the authors declared no competing interests.

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ORIGINAL ARTICLE

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Incidence of Prostate Cancer Detection in TURP Specimen of Clinically Benign Enlargement of Prostate: A Cross Sectional Study

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ABSTRACT

Background: Benign Enlargement of Prostate (BEP) is not known to be a premalignant condition but incidental detection of prostate cancer in patients who undergo Transurethral Resection of Prostate (TURP) for clinically suspected. BEP is not uncommon. In this study we will try to evaluate the incidence of prostate cancer in patient underwent TURP for clinically benign enlargement of prostate.

Materials and methods: A Cross-sectional, hospital based study was designed and carried out in Urology Centre, Combined Military Hospital, A tertiary level referral hospital of Dhaka, Bangladesh during the period July 2018 to December 2020. All patients who underwent TURP with initial diagnosis as BEP were purposively sampled.

Results: Incidental prostate cancer was found in 9(9%) patient. Among them stage T1a and T1b were found in 7(77.7%) and 2(22.2%) cases respectively. Favourable Gleason's score found in 5(55.5%) cases.

Conclusion: The current study shows that prostate cancer is not uncommon in TURP specimens and chips should be sent for histopathology on routine basis.

Key words : Benign enlargement of prostate; Lower urinary tract symptom; Prostate cancer.

Introduction

Lower Urinary Tract Symptom (LUTS) and acute or chronic retention of urine is a common scenario in day to day practice of Urology. Benign Enlargement of Prostate (BEP) is a common cause of significant LUTS in men and most common cause of bladder outflow obstruction in men over 70 years.[1] Most commonly the enlargement of prostate is due to Benign Prostatic Hyperplasia (BPH) or Benign Enlargement of Prostate (BEP) and a very few of them are due to malignancy, prostatitis and others. Prostate cancer is one of the most common non-cutaneous malignancies in elderly men.[1] The estimated lifetime risk of disease is 16.72%, with a lifetime risk of death at 2.57%.[2] If detected early curative treatment can be offered. Incidental prostate cancer refers to prostate cancer (stage T1a/T1b) which are diagnosed incidentally on examination of specimen of transurethral resection of prostate (TURP) for clinically benign enlargement.[3] The incidental detection of prostate cancer in patients who undergo TURP for clinically BPH is reported to be as high as 15%.[3,4] In this study we will try to evaluate the incidence of incidental prostate cancer in patient underwent TURP for clinically benign enlargement of prostate.

The prostate starts enlarging in men after 3rd decade and the symptoms commonly appear between 5th and 7th decade.[1] Benign Prostatic Hyperplasia (BPH) is a histological diagnosis associated with unregulated proliferation of connective tissue, smooth muscle and glandular epithelium within the prostatic transition zone.[5] BPH is the most common benign condition in men with increasing age.[6] It causes significant lower urinary tract symptoms in men and is the most common cause of bladder outlet obstruction in elderly men[1, 5].

Patients with enlarged prostate can present as i) Retention of urine, either acute or chronic, ii) Features of LUTS like storage symptoms (Frequency, urgency, nocturia, urge incontinence) and voiding symptoms (Poor flow, hesitancy, interrupted stream, terminal dribbling, sensation of incomplete emptying. iii) Occasionally present with burning sensation during micturition, haematuria and features of renal insufficiency.[5] Patient with chronic retention may also develop overflow incontinence.[1]

Carcinoma of the prostate is the most common malignant tumour in men over the age of 65 years.[1,7] Most tumours arise from Peripheral Zone (PZ). The stromal band which separates the Transitional Zone (TZ) from the PZ also seems to constitute a barrier against tumour expansion, keeping it confined to the zone in which it originated.[8] According to McNeal et al. the zonal origin of a prostate cancer focus can be classified if ≥ 70% of its tumour area is

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Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 24-27

in a particular zone.[9] Therefore, even large prostate cancers in most cases can be assigned to a particular zone. Franks, in his classic autopsy study on latent prostate cancers, found all but one tumour to be in what he termed the 'outer zone' of the prostate.[10]

Prostate cancer (Ca prostate) is usually suspected on the basis of Digital Rectal Examination (DRE) and Prostate Specific Antigen (PSA) level supported by investigations like Trans-rectal Ultrasound (TRUS) and Magnetic Resonance Imaging (MRI) and confirmed by histo-pathological examination[1,7].

DRE has long been used to diagnose prostate cancer clinically. Abnormal DRE findings of prostate include nodules, asymmetry, or induration and hard in consistency. DRE can detect tumours in the posterior and lateral aspects of the prostate gland; an inherent limitation to the digital examination is that only 85 per cent of cancers arise peripherally where they can be detected with a finger examination. Stage T1 cancers can't be detected as they are non-palpable by definition.[11] T1a and T1b prostate cancer are diagnosed at the time of transurethral resection of the prostate (TURP) for benign prostatic disease. T1a disease involves 5% or less of the resected tissue, whereas T1b disease involves more than 5% of the resected tissue.[1,2,12]

Trans Urethral Resection of Prostate (TURP) has been recognized as the gold standard for treatment of BPH.[1,4,13] TURP is safe and feasible even in a large prostate, and it can replace open prostatectomy. TURP targets the transitional zone of the prostate[14]. Prostate cancer isolated exclusively in the Transitional Zone (TZ) is uncommon, accounting for only 2-7% of all prostate cancers[8, 15, 16]. The aim of the study to evalute the incidence of prostate cancer in patient underwent TURP for clinically benign enlargement of prostate.

Materials and methods

This is a hospital based cross-sectional, observational study involving observation of the patient from admission to final outcome (Histopathological diagnosis). This study was carried out in the Department of surgery & Urology Centre, Combined Military Hospital (CMH), Dhaka, Bangladesh, for a period of 6 months commencing from July 2018 to December 2020. All patients with symptomatic BPH admitted for TURP in Combined Military Hospital through emergency & Casualty and Outpatient Department were included.

Purposive sampling method was followed as per inclusion and exclusion criteria. Patients were explained about the procedure, economical factors and post procedure follow-up schedule. After admission, all patients underwent detail history and physical examination, including DRE. Serum PSA sample were sent beforehand. Trans-abdominal USG was done in all cases and data collected.

Patients were selected basing on the inclusion and exclusion criteria. Initially 116 patients were selected. 16 patients were excluded due to suspicion of malignancy who did not meet the inclusion criteria and refusal for surgical treatment.

Inclusion criteria

- History of lower urinary tract symptoms due to enlarged prostate
- Enlarged prostate on DRE with benign findings
- Acute or chronic retention of urine
- Serum PSA within normal limit.

Exclusion criteria

- Causes retention of urine is other than BPH (Stricture urethra, neurogenic bladder) vesical stone
- Abnormal DRE findings (e.g. hard, nodular, irregular prostate)
- Previously known case of Ca Prostate.Raised serum PSA level.

All the patients underwent TURP in a single operation theatre with same setup and by three surgeons of Urology Centre of CMH Dhaka. Collected chips were marked and sent for histo-pathology in affiliated Armed Forces Institute of Pathology, Dhaka cantonment. Histopathology reports were evaluated on follow-up visit.

Results

100 patients were studied in this study. The most common presentation was LUTS (66%). BPH, prostatitis and prostatic intraepithelial neoplasia was found in 86, 4 and 1 cases respectively. Incidental prostate cancer was detected in 9(9%) of the patients. Among them stage T1a and T1b were found in 7(77.7%) and 2(22.2%) cases respectively. Favourable Gleason'sscore (≤6) found in 5(55.5%) cases. Gleason's score 7 was found in 1 patient and Gleason's score >7 found in 3 cases. Histopathological findings are shown in Figure 4, Table I & II.

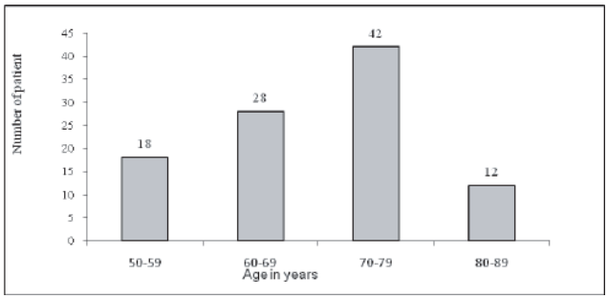

Figure 1 Age distribution of the patients (n=100)

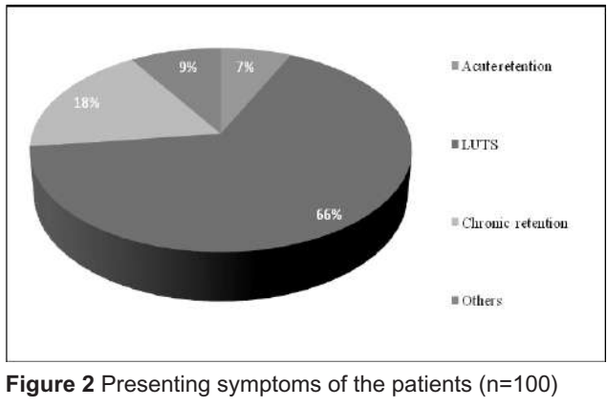

Figure 2 Presenting symptoms of the patients (n=100)

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 24-27

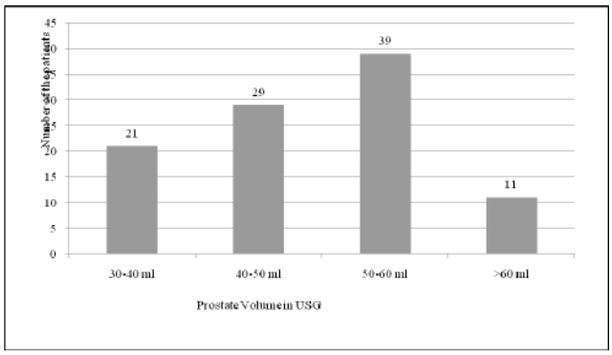

Figure 3 Prostate volume measured by Trans-abdominal USG (n=100)

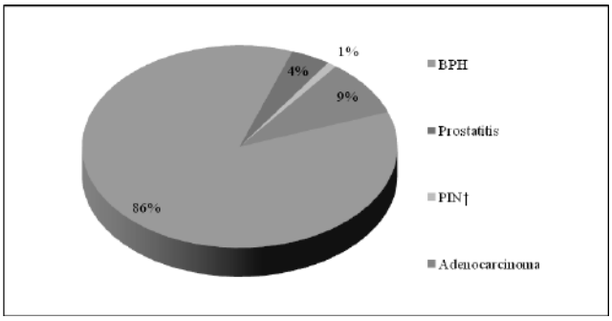

Figure 4 Histo-pathological findings of TURP specimen. (PIN=Prostatic Intraepithelial Neoplasia) (n=100)

Table I Histological stages of Carcinoma Prostate (n=9)

Stage	No of cases	Percentage
T1a	07	77.7%
T1b	02	22.2%

Table II Gleason's score (n=9)

Score	No of cases	Percentage
2-6	05	55.5%
7	01	11.1%
8-9	03	33.3

Discussion

In the recent past, several studies have shown that the rate of incidental prostate cancer discovery has decreased in the PSA era as PSA is used as screening tool for prostate cancer. Pethiyagoda AUB and Pethiyagoda K.[17] from Srilanka in their retrospective study of 444 patients 14.9 % were found to have incidental prostate carcinoma, 83.8 % were Benign Prostatic Hyperplasia, 1.6 %was Prostatic Intraepithelial Neoplasia (PIN) and 10.4% had squamous metaplasia.

DaeKeun Kim et al.[17] studied a total of 165 BPH patients with LUTS who underwent TURP from January 2006 to January 2009. Prostate cancer was detected in 13 patients (7.9%), 8 of whom were diagnosed with stage T1a (4.8%) and 5 of whom were diagnosed with stage T1b (3%). Gleason 6 or less was found in 7 patients.[18]

Our study showed an incidental prostate cancer rate of 9%, the Gleason sum of which ranges from 5 to 9. This detection rate is slightly higher than some of the recently published series. Mai et al showed similar results in their review of almost 1000 TURP specimens.[19] Prior to our findings, detection ranged from 4.8% to 16.7%.[4,12,20-24] Dellavedova et al found an incidental prostate cancer detection rate of 7% when they reviewed 100 patients who underwent bipolar TURP.[4] Six patients had Gleason grade 3+3 pT1a disease and one patient had Gleason grade 3+4 pT1b disease. Helfand et al. studied the postoperative changes in PSA and PSA velocity in patients undergoing surgical management of BPH, they found an incidental prostate cancer rate of 8.7% in 313 patients who underwent monopolar or bipolar TURP.[20] Twenty patients had pT1a disease and 10 had pT1b disease. Voigt et al. found an incidental prostate cancer rate of 11.1% in their study trying to identify risk factors for clinically relevant prostate cancer discovered incidentally.[20] 3.4% of the patients in their series had clinically relevant prostate cancer, pT1b, or Gleason grade 7–10 disease. Trpkov et al. have reported the highest incidental prostate cancer rate (16.7%), however, their study included patients with known prostate cancer.[22] A recent multi-centric review by Yoo et al. showed an incidental prostate cancer rate of 4.8% in over 1600 patients.[23] Overall, these studies continue to support both a decreased overall prevalence of incidental prostate cancer and more specifically pT1b lesions in the recent time. Besides this, the importance of diagnosis of prostate cancer in younger males is well established in contemporary urological practice.[2]

However in a study showed that prostate cancer was diagnosed in 13.4% of the younger group and 28.7% in the older group.[14] The younger group had a higher proportion of low-volume disease (pT1a). Of the diagnosed prostate cancers, the 92.2% were of acinar adenocarcinoma subtype, with similar proportions between subgroups. Within the younger group, a significantly higher rate of low-grade prostate cancer was diagnosed (Gleason score 6).

Conclusion

In this study rate of detection of incidental prostate cancer is 9% in clinically unsuspected patients. So the chance of finding a cancer in TURP specimen is not infrequent. Prostate tissue retrieved after TURP should be sent for histopathological examination. Any patient with benign enlargement of prostate underwent medical or surgical treatment be evaluated with serum PSA and TRUS. If there is suspicion of cancer they should undergo for prostate biopsy. Patients underwent medical or surgical treatment with benign enlargement of prostate should be counselled about the incidental finding of prostate cancer. Modalities of treatment may be changed after availability of histopathology report.

Disclosure

All the authors declared no competing interests.

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Volume 5 Issue 2 December 2022; 24-27

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ORIGINAL ARTICLE

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Probable Factors Responsible for Disease Severity of COVID-19 Patients

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ABSTRACT

Background: Coronavirus Disease 2019 (COVID-19) is a new predominant respiratory and multi-system disease that needs quick identification of potential critical patients through the risk factors for saving organs or lives even. This study aimed to explore probable factors responsible for disease severity of COVID-19 patients.

Materials and methods: This observational, descriptive study was conducted among 70 patients who were dangerously ill and were treated in Intensive Care Unit at Combined Military Hospital, Bogura, Majhira Cantonment, Bangladesh during the time period of May 2021 to July 2021. Data were collected by document review. Data analysis were done through SPSS.

Results: Among 70 respondents 53 (75.71%) cases were more than 55 years.Among 70 respondents 54 (77.14%) had co-morbidities and among 39 death cases 37 (94.87%) had comorbidities.Among the highest 24 (34.3%) cases who presented with fever and respiratory distress, 18 (75%) died in hospital. Next highest 23 (32.9%) cases presented with fever and common cold and of them 8 (34.78%) died in hospital. Of the 70 cases 67 (95.71%) cases had lung involvement in HRCT and of them 53 (79.10%) had more than 40% involvement. Significant relation found between severity of COVID-19 and percentage of lungs involvement in HRCT (p = 0.042). CXR of the 70 cases revealed 41 (58.57%) as suggestive of COVID pneumonia. Among 70 respondents 42 (60%) had lymphocyte count below normal level (less than 20%). Of the 39 death cases 30 (76.92%) had less than 20% lymphocyte count during admission.

Conclusion: In the present study older age (More than 55 years), comorbidities (Notably heart disease, Hypertension, Diabetes Mellitus) non-vaccination are found as the important factors which may be responsible for the severity and fatality of COVID-19. Lymphocyte count (Lymphopenia), HRCT and CXR were found the useful investigation related factors in severe cases of COVID-19.

Key words: COVID-19; Severe; Factors.

Introduction

Since December 2019, the epidemic of the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS CoV 2) infectious pneumonia were broke out in Wuhan, China. The Chinese government and researchers have taken rapid measures to control the epidemic. On January 30, 2020, WHO declared that the epidemic of SARS CoV 2 is a Public Health Emergency of International Concern (PHEIC). At present, the number of patients with SARS CoV 2 infection was rising till 2021, and its harmful effect to human beings has exceeded the outbreak of Severe Acute Respiratory Syndrome (SARS) in China, 2002.[1]

Current evidence suggest that SARS-CoV-2 is primarily transmitted through droplets (Particles 5-10μm in size). Person-to-person transmission occurs when an individual with the infection emits droplets containing virus particles while coughing, sneezing and talking. These droplets land on the respiratory mucosa or conjunctiva of another person, usually within a distance of 6 feet (1.8m) but perhaps farther. The virus can remain infectious on inanimate surfacesat room temperature for up to 9 days.[2]

From 9 January 2020 to 29 February 2020 there were 79,394 confirmed cases and 2,838 deaths from COVID-19 in mainland China. Of these, 48,557 cases and 2,169 deaths occurred in the epicenter, Wuhan.[3]

In majority of the population (80%) COVID-19 cases presents as an asymptomatic or mild infection. However, the disease is known to cause severe pneumonia and multiple complications, especially in certain high-risk groups. Average 20% of infected patients needed admission and hospital care, including 5% of them required intensive care and ventilator support.[4]

COVID-19 is peculiar due to its disproportionate case fatality rates among older patients (More than 60 years) as opposed to young adults or pediatric population. The highest mortality rates were seen among individuals above 80 year of age at 14.8%. While patients with no prior comorbid conditions had a case fatality rate of 0.9 %. It was notably higher among those with specific underlying comorbidities, making these population groups high-risk and more vulnerable to severe COVID-19.[5]

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Tobacco smoking is also a risk factor for COVID-19. Smokers (both former and current) are more likely to have severe symptoms, are admitted to Intensive Care Unit (ICU), need mechanical ventilation or die more in compared to non-smokers.[6]

It's very important for any disease including COVID-19 to identify the risk factors related to the disease severity through which clinicians can identify the risk group and manage the cases in a better way.As such this study was carried out among 70 Dangerously Ill Listed (DIL) patients to earmark some of the probable risk factors related to COVID-19.

Materials and methods

This descriptive study was carried out in a 500 bedded hospital named Combined Military Hospital (CMH) Bogura, Bangladesh. Data were collected for three months from 01 May 2021 to 31 July 2021. Data were collected through document review of 70 consecutively admitted dangerously Ill Listed patients who were treated in ICU. Demographic data, clinical features, suspected risk factors and other related data were obtained through checklist. Data were analyzed by SPSS 23 software. Descriptive analysis were done.

Results

In the present study among the 70 consecutively reported DIL cases as respondents, 42 (60%) were male and 28 (40%) were female. Mean age of the respondents were 60 years with SD ± 11 years. Only 02 cases were less than 44 years, rest 68 cases were more than 44 years, with highest 10 cases in 55 years age. Age of 53 cases were more than 55 years. Minimum age was 24 to maximum 92 years.Death rate in the present study is 55.71% (39 cases). Among 39 death cases, 37 (94.87%) were more than 50 years, 25 (64%) were more than 60 years. None of the 70 respondents were previously vaccinated. Forty eight (69%) of the cases were found either RT-PCR or RAT positive.

Among 70 respondents 54 (77.14%) of them had co-morbidities with 12 cases (17%) suffering from three diseases simultaneously as Diabetes Mellitus (DM) Hypertension and Heart Disease. Twenty (37.73%) had only one disease like Hypertension or Diabetes or Heart diseases. Twenty one (39.62%) had two diseases of the above mentioned diseases and only 01 had other comorbidities. Sixteen (22.86%) cases had no comorbidities. Among total 70 cases 23 (32.86%) patients discharged after cure, of them only 13 (56.52%) had comorbidities (Table I).

Among 39 death cases 37 (94.87%) had comorbidities from earlier. Of them highest 28 (75.68%) cases had earlier heart disease with or without other diseases. Of them 8 (21.62%) died with only heart disease as comorbidity. Of the total 39 dead cases 21 (53.85%) had Hypertension with or without other comorbidities. Two (9.52%) cases with Hypertension as only comorbidity died in hospital. Of the total 39 dead cases 20 (51.28%) had Diabetes Mellitus with or without other comorbidities. Two (10%) cases with DM as only comorbidity died in hospital (Table I). Significant relation found between prognosis (Outcome) of COVID-19 and existence of comorbidities (p = 0.007).

Among the highest 24 (34.3%) cases who presented with fever and respiratory distress, 18 (75%) died in hospital. Next highest 23 (32.9%) cases presented with fever and common cold and of them 8 (34.78%) died in hospital.

Of the 70 cases 67 (95.71%) cases had lung involvement in HRCT and of them 53 (79.10%) had more than 40% lung involvement. Significant relation found between prognosis (outcome) of COVID-19 and percentage of lungs involvement in HRCT (p = 0.042)(Table II).

CXR of the 70 cases revealed 41 (58.57%) as suggestive of COVID pneumonia.

Among 70 respondents 42 (60%) had lymphocyte count below normal level (Less than 20%). Of the 39 death cases 30 (76.92%) had less than 20% lymphocyte count during admission.

Of the 70 cases total 19 (27.14%) had less than 5 days duration of illness. Among 39 death 31(79.49%)reported to the hospital with a suffering for less than 10 days.

Table I Distribution of the respondents by prognosis and comorbidities (n=54)

Prognosis	Comorbidities								TOTAL (%)
	Hyperte-nsion	DM	Heart disease	Hyperten-sion & DM	Hyperten-sion & Heart disease	DM & & Heart disease	Hyperten-sion, DM & Heart disease	Other Comorb-idities	
Discharged	01	04	00	03	01	00	04	00	13 (24.07%)
Discharged on Risk Bond (DORB)	03	00	00	00	00	00	00	00	03 (5.56%)
Died in hospital	02	02	08	05	07	05	08	01	38 (70.37%)
TOTAL	06 (11.11%)	06 (11.11%)	08 (14.81%)	08 (14.81%)	08 (14.81%)	05 (9.26%)	12 (22.22%)	01 (1.54%)	54 (100%)

Test of sig (Fisher's Exact) (2-sided), Value = 22.868, p = 0.007.

Table II Distributionof the respondents by prognosis and HRCT result (n=70)

Prognosis	HRCT result						Total (%)
	21-40% INVOLVE	41-60% INVOLVE	61-80% INVOLVE	MORE THEN 80% INVOLVE	NORMAL	NOT DONE	
Discharged	02	00	18	02	00	01	23 (32.86%)
Discharged on Risk Bond (DORB)	01	00	05	01	00	01	08 (11.43%)
Died in hospital	11	06	20	01	01	00	39 (55.71%)
TOTAL	14 (20%)	06 (8.57%)	43 (61.43%)	04 (5.71%)	01 (1.43%)	02 (2.85%)	70 (100%)

Test of sig (Fisher's Exact) (2-sided), Value = 15.726, p = 0.042.

Discussion

In the present study among the 70 consecutively reported DIL cases 42 (60%) were male and 28 (40%) were female. Mean age of the respondents were 60 years with SD ± 11 years. Only 02 cases were less than 44 years, rest 68

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 28-32

cases were more than 44 years. Age of 53 (75.71%) cases were more than 55 years and 25 (64%) were more than 60 years. Minimum age was 24 to maximum 92 years. Among 39 death cases, 37 (94.87%) were more than 50 years.

In a study by Zhang C et al age was 45.34 years with SD ± 15.25 years and higher age is found strongly associated with the severity of COVID-19 disease.[7] Study by Varghese GM and three others revealed that COVID-19 has more case fatality rates among patients more than 60 years as opposed to young adults or pediatric population.[8] The highest mortality rates were seen among individuals above 80 years of age at 14.8%. In the present study except 02 cases rest 68 dangerously ill consecutive cases were more than 44 years and it is found thatthe more the age the more is the fatality indicating that like other diseases extreme old age is an important risk factor for severity and fatal outcome of COVID-19.

Death rate in the present study is 55.71% (39 cases). As of 29 February 2020 there were 79,394 confirmed cases and 2,838 deaths (3.57%) from COVID-19 in mainland China.[3] Global mortality is reported at 4.7% but this varies widely by location from a high of 10.8% in Italy to a low of 0.7% in Germany. Among the first 140904 cases in USA death rate was 1.7%.[2] But in the present study the death rate was much higher, as because in the present study cases were all non-vaccinated, almost all in older age group and most of them had comorbidities. All these factors are usually well known risk factors for almost all health conditions including COVID-19.

None of the 70 respondents were previously vaccinated. Other studies showed that regardless of the number of doses or days since vaccination, vaccination was associated with decreased mortality when compared to unvaccinated individuals. Most patients with prior vaccination had a complete recovery. Since the introduction of COVID vaccination, both clinical trial and real-world data have shown the high efficacy of COVID-19 vaccines in preventing SARS-CoV-2 infection and severe disease consequences.[9,10,11] Beside the other factors non vaccination of the respondents is an important factor for the much higher mortality rate of 55.71% in the present study. This study was carried out at a time period when Bangladesh has just started vaccination all over the country and most of the rural people were not motivated to take vaccine. The study respondents were mostly rural in origin also.

Among 70 respondents 54 (77.14%) of them had co-morbidities with 12 cases (17%) suffering from three diseases simultaneously as Diabetes Mellitus (DM), Hypertension and Heart Disease. Twenty one (39.62%) had two diseases of the above mentioned diseases. Twenty (37.73%) had only one disease like Hypertension or Diabetes or Heart disease. and only 01 had other comorbidities. Sixteen (22.85%) cases had no comorbidities. Among total 70 cases 23 (32.86%) patients discharged after cure, of them only 13 (56.52%) had comorbidities (Table I).

Among 39 death cases 37 (94.87%) had comorbidities from earlier. Of them highest 28 (75.68%) cases had earlier heart disease with or without other diseases. Of them 8 (21.62%) died withonly heart disease as comorbidity. Of the total 39 dead cases 21 (53.85%) had Hypertension with or without other comorbidities. Two (9.52%) cases with Hypertension as only comorbidity died in hospital. Of the total 39 dead cases 20 (51.28%) had Diabetes Mellitus with or without other comorbidities. Two (10%) cases with DM as only comorbidity died in hospital. Significant relation found between prognosis (outcome) of COVID-19 and existence of comorbidities ($p = 0.007$) (Table I).

The presence of comorbidities was reported in 49.12% (559/1138) of the total patients, with significantly higher frequency in the deceased than in the survivals (77.06% vs. 42.50%, $p < 0.001$). As a whole, Hypertension was the most prevalent comorbidity (32.95%), followed by Diabetes Mellitus (DM, 15.64%) and Chronic Heart Diseases (CHD, 9.31%).[12]

Study by Adams ML, Katz DL, Grandpre J. on comorbidities responsible for risk of complications due to COVID-19 found cardiovascular disease, Chronic Obstructive Pulmonary Disease (COPD) Diabetes, Asthma, Hypertension and/or cancer as the important diseases. Since COVID-19 was discovered in China in late 2019, the overall Case Fatality Rate (CFR) for 55,924 confirmed cases was 3.8% with increased rates in adults with comorbid conditions including cardiovascular disease (13.2%), Diabetes (9.2%), Chronic Respiratory Disease (8.0%), Hypertension (8.4%) and Cancer (7.6%).[13]

It is believed that middle-aged and elderly patients with chronic diseases, such as Diabetes, Cardiovascular Diseases and Hypertension are susceptible to respiratory failure and may have a poorer outcome.[14,15] Our study result revealed that heart diseases are the most important comorbidity for COVID-19 cases which leads individual to severe consequences, even to fatality. The next comorbid conditions which are related to the severity of COVID-19 cases were found hypertension and DM. Differences of mortality due to different comorbidities shows significant ($p = 0.007$) which is evident in other studies also.

In the present study out of 70 total respondents 17 had no comorbidities and among them only 02 patients died with case fatality rate 2.86%. Study demonstrate that patients with no prior comorbid conditions had a case fatality rate of 0.9 per cent.[5] In another study the case fatality rate for those with none of these comorbid conditions was 1.4%.[13] The rate varied because of differences in treatment facilities, populations, immunity and other factors.

Among the highest 24 (34.3%) cases who presented with fever and respiratory distress, 18 (75%) died in hospital. Next highest 23 (32.9%) cases presented with fever and common cold and of them 8 (34.78%) died in hospital. Studies found that severe patients were more likely to

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 28-32

have chest distress and respiratory symptoms, such as anhelation and asthma.[16,17] The most common presenting features of COVID-19 infection are fever (80-90%), cough (60-80%) and dyspnea (18-46%). Other symptoms as presentation include myalgia or fatigue, sore throat, nasal congestion, headache, nausea, vomiting and diarrhea.[18,19] The present study found that fever, common cold and respiratory distress are the important symptomatic factors to identify and segregate the severe cases which is similar to other studies.

Of the 70 cases 67 (95.71%) cases had lung involvement in HRCT and of them 53 (79.10%) had more than 40% involvement. Significant relation found between prognosis (outcome) of COVID-19 and percentage of lungs involvement in HRCT (p = 0.042) (Table II). HRCT is found an important factor for early diagnosis of the disease so as to help in preventing towards severe consequences. CXR of the 70 cases revealed 41 (58.57%) as suggestive of COVID pneumonia.This findings revealed that HRCT and CXR are also two investigating factors for the diagnosis of severe cases of COVID-19.

Among 70 respondents 42 (60%) had lymphocyte count below normal level (Less than 20%). Of the 39 death cases 30 (76.92%) had less than 20% lymphocyte count during admission. In other studies, severe patients were found to have lymphopenia (57.1%) than mild patients (34.5%), which is consistent with previous studies that severe patients have higher rates of lymphopenia.[20,21] Study by Tan L et al found that patients with more than 20% lymphocyte count are classified as moderate type and can recover quickly.[22] Whereas patients with less than 20% lymphocyte count are classified as severe type. Our study finding has similarity with above mentioned studies, suggesting that lymphopenia is an early indicative factor for severe cases of COVID-19.

Conclusion

In the present study older age (More than 55 years) comorbidities (Notably heart disease, Hypertension, DM), non-vaccination are found as the important factors which may be responsible for the severity and fatality of COVID-19. Fever, common cold and respiratory distress are found as the important presenting symptoms in relation to severe COVID-19 and investigations named lymphocyte count (Lymphopenia), HRCT and CXR are the investigations which can be used to diagnose severe cases of COVID-19.

Disclosure

Both the authors declared no competing interest.

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Journal of Army Medical College, Chattogram
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ORIGINAL ARTICLE

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Histopathological Pattern of Lung Carcinoma among Smokers: A Prospective Study in Combined Military Hospital, Dhaka

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ABSTRACT

Background: Lung carcinoma is a dreadful disease responsible for the highest mortality among the cancer patients worldwide. There are several factors responsible for the lung cancer including patient related and environmental factors. Smoking is the highly alarming risk factor among these. The purpose of the study is to observe the different histological patterns of lung cancer among smokers.

Materials and methods: This cross sectional study was conducted in the Department of Internal Medicine and Oncology of CMH, Dhaka and the duration of the study was 6 (Six month) from April to September 2017.

Patients were enrolled by purposive sampling. They were finalized by eligibility criteria. Data were recorded and analyzed through a pre structured questionnaire.

Results: Out of 93 patients, maximum 38.70% patients belonged to age group 70-79 years. Subsequently, 25.80% and 22.58% patients were from 60-69 years and 50-59 years respectively. The mean age was 68.3±10.8 years (age range: 30-84 years). Among 93 patients 90 (96.78%) patients were male and rest 3(3.22%) were female. 72(77.41%) and 21 (22.58%) patients were hailing from urban and rural areas respectively. From poor family were suffering from adenocarcinoma and squamous cell carcinoma respectively. Regarding comparison of smoking related variables with major histological lung cancer, it was observed that the mean age of starting smoking was significantly lower in squamouscell carcinoma 19.45±4.17 years than adenocarcinoma 21.53±5.17 years. Out of 93 patients, 35(37.63%) and 21(22. 58%) patients smoked 30-39 and ≥ 40 cigarettes per day. Out of 35 ex-smokers 69.23% of all SCC quitted smoking for more than 25 years whereas 52.63% of all adenocarcinoma quitted smoking for 15-24 years and 33.33% of all small cell carcinoma. So longer lag time since quitting smoking was found in squamous cell carcinoma group than that of adenocarcinoma and small cell carcinoma group.

Conclusion: There is a marked relationship between smoking and histological types of lung carcinoma. Smoking status alone cannot state always regarding the conventional higher frequency of squamous cell carcinoma. All the confounding factors attributable to the carcinoma lung were not addressed accordingly here. For that reason, the mixed histological patterns of smokers were observed.

Key words : Adenocarcinoma; Squamous cell carcinoma; Small cell carcinoma.

Introduction

Lung cancer, or frequently known as bronchogenic carcinoma is the leading cause of cancer mortality worldwide in both men and women. It is the most common malignant disease in developed countries with an estimated 15% of new cancer cases each year.[1-2] Lung cancer causes more deaths than colorectal, breast and prostate cancer combined and an estimated 158,040 Americans are expected to die from lung cancer in 2015, accounting for approximately 27 percent of all cancer deaths. In women smoking prevalence and deaths from lung cancer continue to increase and more women now die of lung cancer then breast cancer in the world. It is one of the health problems of Bangladesh in which smoking plays the most vital role. Histopathological gradation of the bronchial carcinoma in order of frequencies are Squamous Cell Carcinoma (SQCC) 35%, adenocarcinoma 30%, Small Cell Carcinoma (SCC) 20% and large cell carcinoma 15%. Although squamous cell carcinoma for many years has been the most common histological type, adenocarcinoma has been increasing in incidence over last 20 years. There are also reports that adenocarcinoma has become the most frequent histological type of lung cancer today and is responsible for 50% of all lung cancers.[3] An increasing incidence of adenocarcinoma may be due to changes in the criteria of the histopathological diagnosis of lung carcinoma or may result from new environmental and occupational hazards. However, it is also possible that the increase in lung adenocarcinoma cases, in fact, may be caused also by increasing smoking prevalence.

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Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 33-36

A direct association between smoking and various histological types of lung cancer has been observed for measures of intensity, duration and dose. Studies conducted in the USA, Western Europe and China observed a higher smoking related risk of squamous cell carcinoma and small cell carcinoma than that of adenocarcinoma of the lung. The largest of these studies suggested that intensity of cigarette exposure has less distinct effect on all cell type than duration of use. Duration is more strongly associated with SQCC and SCC than adenocarcinoma.

In the early 1960s, Kreyberg described the relationship between tobacco smoking and adenocarcinoma of the lung as ''slight, if any.'' Subsequent epidemiologic study consistently found smoking to be associated with adenocarcinoma, yielding Relative Risk (RR) estimates of 2.0–5.0.[4,5] Since the association was weaker than that observed with squamous cell or small-cell lung carcinomas, it remains controversial why, in the late 1980s, adenocarcinoma became the most common lung cancer in U.S. Surveillance, Epidemiology and End Results (SEER) tumor registries.[6]

Thus, the aim of the study was to find out the histopathological pattern in lung cancer and its association with smoking. Specifically, to determine the demographic profile of smokers in relation to lung carcinoma, to find out the variation of histological pattern in lung carcinoma and to correlate the histological pattern with smoking habit were purpose of the study.

Materials and methods

Hospital based cross sectional study was conducted in the Department of Internal Medicine and Oncology, CMH Dhaka and the duration of the study was 6 (Six months) from April to September, 2017. Patients admitted at Internal Medicine & Oncology Department of CMH Dhaka diagnosed as lung carcinoma considered as study population. The sample size of the study was 93 patients.

Inclusion criteria were all smokers admitted during the period of the study atleast 5 pack year having clinica land radiological findings of bronchial carcinoma, Patients admitted in Department of Medicine with suspicion of bronchial carcinoma clinically and radiologically and from whom informed consent is obtained. Exclusion Criteria were patients with Lung metastases, bleeding diathesis, emphysematous bullae, poor respiratory function or reserve and Non smokers. The researcher was duly careful about ethical issues related to this study. In this study the following criteria was set to ensure maintaining the ethical values: all patients were given an explanation of the study including the potential risks and obtainable benefits, all patients were included in the trial after taking their informed consent. The researcher also explains study period from the right to refuse or accept to participate in the study, the patients will not gain financial benefit from this study and all data obtained during study period from the patients remained confidential.

Results

Table I Distribution of patients according to age, sex, residence area, occupation and smoking status (n=93)

Age group (In years)	Frequency (%)
30–39	1(1.07%)
40–49	10(10.75%)
50–59	21(22.58%)
60–69	24(28.80%)
70–79	36(38.70%)
80+	1(1.07%)
Meanage±SD (In years)	68.3±10.8
Agerange (In years)	30–84
Sex	
Male	90 (96.78%)
Female	3 (3.22%)
Residence area	
Rural	21(22.58%)
Urban	71 (77.41%)
Occupation	
Service holder	38 (40.86%)
Business	29 (31.18%)
Industrial work/Fisheries	15 (16.12%)
Defense service	6 (6.45%))
Others	5 (5.37%)
Smoking status	
Current smokers	58 (62.36%)
Ex-smokers	35 (37.63)
Economic status	
Rich family	29 (31.18)
Average family	61 (65.59%)
Poor family	3 (3.22%)

Table I shows that out of 93 patients, maximum 38.70% patients belonged to age group 70- 79 years. Subsequently, 28.80% and 22.58% patients were from 60-69 years and 50-59 years respectively. The mean age was 68.3±10.8 years (Age range: 30-84 years). It also demonstrates that out of 93 patients 90 (96.78%) patients were male and rest 3 (3.22%) were female while out of 93 patients, 72 (77.41%) and 21 (22.58%) patients were hailing from urban and rural areas respectively. The table shows that among 93 patients, maximum 40.86% were service holders who underwent official or table jobs only. Subsequently, 31.08% and 16.12% were business person and industrial workers 6.45% patients were from defense job. Besides 5.37% patients were labeled as others whereas among 93 patients 58 (62.36%) patients were current smokers whereas 35(37.63%) patients were ex-smokers. Here ex-smokers denoted the person who left smoking minimum 1 year before clinical examination. The table states that out of 93 patients, 61(65.59%) were from average income family (5000- 20,000 BDT/month). Subsequently, 29 (31.18%) patients were from affluent family (>20,000 BDT/month) and rest 3 (3.22%) were from poor family (<5,000 BDT/month).

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 33-36

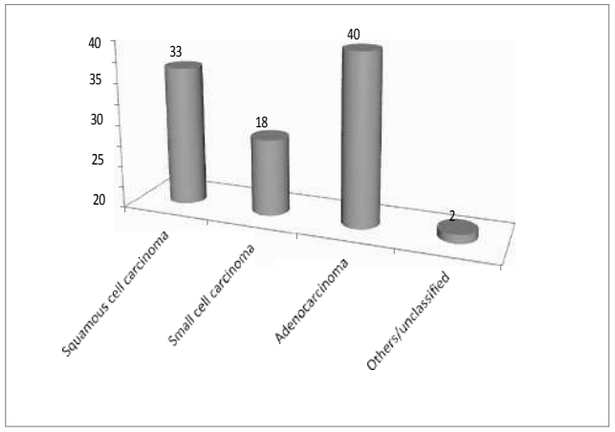

Figure 1 Distribution of patients according to histological pattern of lung carcinoma (n=93)

Figure 1 demonstrates histological pattern where out of 93 patients, 40 (43.01%) and 33 (35.48%) were suffering from adenocarcinoma and squamous cell carcinoma respectively. Besides 18 (19.35%) and 2 (2.15%) were suffering from small cell carcinoma and others or unclassified respectively.

Table II Distribution o fpatients according to correlation of smoking with histopathological pattern (n=93)

	SCC (n=33)	Adeno carcinoma (n=40)	Small cell carcinoma (n=18)	Others/ unclassified (n=2)	p-value
Ex-smoker (n=35)	13 (39.39%)	19 (47.5%)	3 (16.67%)	0(0%)	
Currentsmoker (n=58)	20 (60.60%)	21 (52.5%)	15 (83.33%)	2 (100%)	0.168^{NS}
Amountofcigarettes/day					
1-9	2 (16.06%)	0(0%)	0(0%)	0(0%)	
10 – 19	8 (24.24%)	5 (12.5%)	1 (5.55%)	0(0%)	----
20–29	11 (33.33%)	7 (17.5%)	3 (16.67%)	0(0%)	
30–39	6 (18.18%)	22(55%)	6 (33.33%)	1(50%)	
≥ 40	6 (18.18%)	6 (15%)	8 (44.44%)	1(50%)	
Ageofstarting,yr					
• ≥ 20	6 (18.18%)	17 (42.5%)	7(38.89%)	0(0%)	
15–19	10 (30.30%)	16(40%)	11(61.11%)	0(0%)	0.005^{S}
<15	17 (51.51%)	7(17.5%)	0(0%)	2(100%)	
Meanage of starting smoking	19.45±4.17	21.53±5.17	17.76±3.17	15.13±5.18	0.57^{NS}

p-value was calculated by chi square test NS: Not significant
S: Significant.
p-value was significant at <0.05.

Table II shows correlation of smoking with histopathological pattern, the overall distribution of histological pattern of lung carcinoma and its relation to different parameters of smoking. Out of 93 patients, 35(37.63%) and 21(22.58%) patients smoked 30-39 and 40 cigarettes per day.

Table III Distribution of patients according to correlation of years of quitting smoking with histopathological pattern (n=35)

	SCC (n=13)	Adeno carcinoma (n=19)	Small cell carcinoma (n=3)	Others/ unclassified (n=0)	p-value
Years since quitting (n=35)					
≥ 25	9 (69.23%)	6 (31.57%)	0(0%)	0(0%)	
15–24	1 (7.69%)	10 (52.63%)	1 (33.33%)	0(0%)	0.06^{NS}
5–14	1 (7.69%)	2 (10.52%)	1 (33.33%)	0(0%)	
1–4	1 (7.69%)	1 (5.26%)	1 (3.33%)	0(0%)	

p-value was calculated by chi square test NS: Not Significant
p-value was significant at <0.05.

The study tried to correlate the quitting smoking with histopathological pattern. Table III show sthat out of 35, ex-smokers 69.23% of all SCC quilted smoking for more than 25 years whereas 52.63% of all adenocarcinoma quilted smoking for 15-24 years and 33.33% of all small cell carcinoma.

Discussion

It is well known from 1950 that adenocarcinoma of the lung is highly frequent in women.[7] But in our study the frequency of women were very poor. All the 3 patients having lung cancer suffered from adenocarcinoma. But it must be mentioned here that lung cancer still is the leading cancer among women in the world. Unfortunately, all non-smoker participants were excluded from the study for which this poor number of statistics of women patients was revealed in our perspective. Men and women may differ in their susceptibility to the insults of tobacco smoke. This could reflect a difference related to the manner of smoking or an independent effect due to hormonal or other factors. In recent studies, the relative risks for lung cancer in women exceeded those for men for given levels of smoking intensity. Rischet al reported that the odds ratio for lung cancer among male smokers increased from 5.2 for 1 to 30 pack-years to 22.6 for >60 pack years. In female smokers, the corresponding odds ratios were 7.3 and 81.9, respectively.[8]

The likelihood of gender differences in lung cancer risk is supported by the greater proportion of adenocarcinoma in women, the finding of estrogen steroid receptors in lung tumor tissues, and epidemiologic studies relating hormonal factors to the development of lung cancer.[9,10] In addition, studies have shown that sex hormones increase the incidence of pulmonary neoplasms in laboratory animals.[11] A report by Adamiet al shows a 30% increased rate of lung cancer in Swedish women who took estrogen replacement therapy.[10] Women who took Estrogen Replacement Therapy (ERT) had a significantly elevated risk (Relative Risk [RR] 1.7; 95% Confidence Interval [CI], 1.0-2.8) for adenocarcinoma.[12] But none of our patient was found as hormone therapy receiver.

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 33-36

Elderly people are more vulnerable to develop lung cancer. So, age is a risk factor here.[13] Our study also supports this statement as we have observed the mean age of the respondents was 68.3±10.8 years (Age range: 30-38 years). All the non-smokers were excluded initially from our study. The subjects participated here were all exposed to smoking in life time. Among 93 patients 58 (62.36%) were current smoker and rest 35 (37.63%) were ex-smoker. In the study of Fabio Barbone 74.43% patients were current smoker and 22.64% patients were ex-smoker. In that study, 2.91% (Very negligible) were non-smoker.[14] Other than non-smoker, the study results more or less supported our study.

In this study, 40.86% patients were service holders which figure was subsequently followed by 31.18% businessman 16.12% of our participants were industrial workers. Interestingly, the study by Jos H.J Droste revealed that the industrial chemical exposure people suffered a lot in lung carcinoma. Here the scenario is opposite as because the pattern of service and business were not classified.

From the point of view of histopathological pattern this study observed that 40 (43.01%) and 33 (35.48%) patients suffered from adenocarcinoma and squamous cell carcinoma respectively. 18 (19.35%) and 2 (2.15%) patients suffered from small cell carcinoma and others/unclassified categories. The study of Fabio Barbone revealed that squamous cell carcinoma was the highest (35.36%) among their study population whereas small cell carcinoma (28.87%) claimed the subsequent position.[10] The scenario was not supported by our study.Though squamous cell carcinoma is common among smokers but interestingly we have not got this sort of results.

Age, genetics, second hand smoking, exposure to asbestos or other pollutants as well as exposure to radon may act as confounding variables which were not addressed in the study protocol. The pattern of cigarette smoking changed globally during last 3 decades. It is slowly decreasing in developed countries, at a rate of 1% annually and rising in developing countries, at a rate of 2%.[15]

We found that most of our patients suffering from lung cancer started smoking at 15-19 years of age. But relatively less patients were observed starting smoking <15 years of age. As we have excluded all the patients with distant metastasis the aggressive cancer due to long term exposure to smoking were also excluded. This may be another factor for which squomous cell carcinoma was lower among smokers than adenocarcinoma in our perspective.

Conclusion

Lung cancer usually shows different histological patterns in patients with different riskfactors. In our aspect, it may be concluded here that smoking status alone cannot state always regarding the conventional higher frequency of squamous cell carcinoma. Other important patient related and environmental factors should be considered here. All the confounding factors attributable to the carcinoma lung were not addressed accordingly here. For that reason, the mixed histological pattern of smokers was observed.

Disclosure

Both the authors declared no competing interest.

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ORIGINAL ARTICLE

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Correlation between Platelet Count and Platelet Indices in Dengue Fever in An Endemic Zone of Bangladesh: A Prospective Analytic study

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ABSTRACT

Background: Dengue fever is the most common arboviral infection spread by mosquitoes in Bangladesh. With yearly outbreaks, it has become an endemic disease in Bangladesh. Although there have been significant attempts to eliminate the mosquito, dengue fever has quickly expanded, emerged and taken hold. This study aimed to correlate the platelet count and its indices in the acute stage of dengue illness.

Materials and methods: This prospective observational study was conducted at Private Hospitals in Chattogram between July and October 2022. The study included all individuals who had positive dengue virus tests based on antigens or antibodies. The platelet parameter like Platelet count, Mean platelet volume, Platelet distribution width and Plateletcrit were noted using "Mythic -22" Automated Hematology Analyzer.

Results: Out of 274 dengue-positive patients studied, 54% (148/274) had developed thrombocytopenia along with 23% (62/274) Mean Platelet Volume (MPV) <9 fl, 94% (260/274) had Platelet Distribution Width (PDW) <18 and 62% (171/174) had Plateletcrit (PCT) <0.2. MPV, PDW, and PCT revealed a significant correlation (p=0.000) with declining trends of the platelet count, which occur in severe conditions of patients.

Conclusion: Platelet indices are important markers in dengue viral fever. In addition to platelet count, PDW, MPV, and plateletcrit show sensitivity in platelet count <100000/mm3. Thus, platelet parameters can be used to predict the presence of dengue fever in an endemic region.

Key words: Dengue Fever; Dengue hemorrhagic fever; Dengue shock syndrome; Thrombocytopenia; Platelet Indices.

Introduction

Dengue fever is a viral illness caused by the Dengue Virus (DENV). The single-stranded RNA virus known as dengue belongs to the family Flaviviridae and genus Flavivirus. The Aedes mosquito transmitted it to people. Mainly in tropical and subtropical regions, this disease has spread worldwide and has become a significant public health burden.[1] It can cause anything from a mild fever to potentially fatal complications, including Dengue Hemorrhagic Fever (DHF) and Dengue Shock Syndrome (DSS).

Around 390 million dengue infections are recorded annually in 125 countries worldwide, putting more than 2.5 billion individuals at risk for the disease.[2] Bangladesh is a subtropical country. The incidence of dengue infection has been rising day by day. Morbidity and mortality rates have also been increasing. Four serotypes of the dengue virus are constantly present in Bangladesh throughout the year. Peak outbreaks occur in monsoon and post-monsoon months.[3]

IgG/IgM antibody detection is widely utilized to diagnose dengue infection; however, IgM antibody requires about 4-6 days to appear.[4] Dengue non-structural antigen 1 (NS1) is a glycoprotein that is generated in membrane-associated and secretory variants of the virus. It is considered a novel biomarker for detecting dengue infection early. The best parameter for infection detection in the early stages of the disease is NS1 antigen identification. From the first day of dengue infection, it will be positive. IgG produced by dengue infection may last for years and interferes with the test findings.[5] Other than dengue-specific parameters, the platelet count is the only laboratory investigation which is easily accessible in dengue infection.

In the peripheral areas, dengue fever can be diagnosed roughly by microscope without any expensive setup.[6] Decreased platelets count or thrombocytopenia is the most common and significant laboratory investigation in dengue at severe infective phase.[7] Probable cause of thrombocytopenia includes isolated viral replication in platelets, anti-dengue antibody-mediated platelet destruction, peripheral platelet consumption and direct bone marrow suppression by the virus. Even though platelet count may not be directly associated with hemorrhage, thrombocytopenia can cause bleeding manifestations.[8]

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Journal of Army Medical College, Chattogram
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Thrombocytopenia has been identified as a factor associated with dengue severity, including DHF and DSS, based on WHO criteria. As a result, platelet counts may be utilized to predict the severity of disease in dengue patients.[9] Bleeding in dengue can differ from petechiae to severe hemorrhage, which results in patient mortality.

Currently, Plateletcrit (PCT) Mean Platelet Volume (MPV) and Platelet Distribution Width (PDW) are novel platelet indices that are considered potential platelet activation indicators[10]. MPV is a useful independent predictor of hemorrhage and important parameter of bone marrow activity. Low MPV suggests a risk of bleeding and bone marrow suppression.[11]

PDW is a parameter of volume variability in platelet size, which is increased in the presence of platelet anisocytosis. Plateletcrit (PCT) measures total platelet mass and is helpful for detecting quantitative platelet abnormalities. PCT is the volume occupied by platelets in the blood as a percentage.[10]

These markers have been used alone or in combination to predict the severity of dengue infections. This study was designed to evaluate the platelet profile and correlate platelet count and its indices in dengue-positive cases to presume dengue fever's severity. Thus, the adverse outcomes of this rapidly spreading life-threatening disease can be predicted early.

Materials and methods

This was a prospective observational analytic study carried out in two Private Hospitals (Mother and Child Care Hospital and BGMEA Hospital) in Chattogram on positive dengue cases during the outbreak of dengue infection over five months between July 2022 to November 2022.

Clinical (DF and DHF) and laboratory information was collected from 274 registered patients were serologically (NS1 antigen, IgM- IgG antibody) confirmed as dengue infections treated in hospitals. Demographic features, clinical features, warning signs and duration of stay were noted from inpatient records. Serological confirmation of dengue infection was done using Immune Chromatographic Test (ICT) for detection of NS1 antigen and differential detection of IgM and IgG antibodies. Platelet count and platelets indices were done on "Mythic – 22" Automated Hematology Analyzer, which was correlated with manual platelet count in all the serologically positive cases. Serology and platelet parameters were noted from the hospital-based data system. Platelet count and platelet indices (MPV, PDW, PCT) were recorded repeatedly during the hospital stay.

Normal reference ranges were used in categorizing the study population. A platelet count of 150000, PCT of 0.22, MPV of 9fl, and PDW of 18 were considered as cut off points to categorize the cases.[7,8,10]

Inclusion criteria

All patients had clinical symptoms and serological evidence of dengue infections.

- Serologically negative patient with thrombocytopenia
- Patients with thrombocytopenia without fever
- Bacterial or any viral infection with thrombocytopenia other than dengue infection.

Data were entered into Microsoft Office Excel Sheet 2013. Statistical analysis was done by SSPS software version 22.

Results

A total of 274 dengue positive cases were included in the study. Among these, 62% (169/274) were males and 38% (105/274) were females and male to female ratio was 1.6:1. Fig I showed the age-related demographics of the population wherealmost half of the patient47% (128/274) were within 16-35 years age group. The mean age of the seropositive cases were 30.29 ± 16 years.

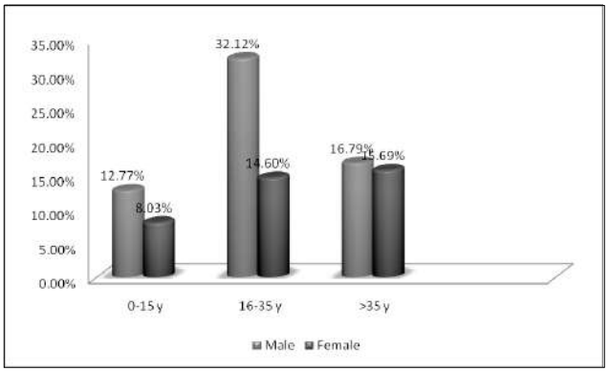

Figure I Distribution of study population according to age groups and gender (n = 274)

Serological parameters showed that 73% (200) of patients were positive for NS1, 9.1% (25) were positive for IgM, 7.3% (20) were positive for NS1 and IgM and others 29% (Table I).

Table I Dengue positive cases (n=274)

Dengue parameters	No of positive cases
NS1	200(73%)
IgM	25(9.1%)
IgG	05(1.8%)
NS1 + IgM	20(7.3%)
NS1+IgG	10(3.65%)
IgM+IgG	06(2.19%)
NS1 + IgM+IgG	08(2.92%)
Total	274(100%)

Table II showed that Platelets count of all the enrolled cases were analyzed and minimum values noted in severe condition. Out of 274 cases, 54% (18% were <100000 and 36% between100.000-150.000) had their platelet count fall to <150000, and 46% of cases platelet count was normal (> 150000) during their illness or day of investigation.

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 37-41

Table II Variation in platelet count of total dengue patients (n=274)

Platelet count	No of patients (n=274)	Percentage (%)
< 100000	49	17.88%
100000- 150000	99	36.13%
>150000	126	45.99%
Total	274	100%

Table III Correlation between platelet indices with three groups of platelets count

Platelet indices	PLT <100000	PLT 100000 - 150000	PLT >150000	p value
Mean of MPV	9.52	10.91	10.61	0.00
Mean of PCT	0.08	0.159	0.23	0.00
Mean of PDW	14.34	15.07	13.47	0.00

p = 0.000; Highly Significant (p < 0.001)

Table III showed the mean MPV, PDW and PCT values in three groups of platelet count <100000, 100000-150000, >150000. The mean value of MPV were 9.5fl, 10.9fl and 10.6 fl respectively. There was statistically significant difference between these groups (p=0.00). The mean PCT values in three groups of platelet count were 0.08, 0.159 and 0.23 respectively which were significant between three groups. The mean PDW values were 14.34, 15.07 and 13.47 respectively, they were also highly significant (Table III).

Table IV Platelet indices of patient (n=274)

Platelet Indices		Number of Patient n=274	Percentage (%)
MPV	<9	62	22.62%
	>9	212	77.37%
PCT	<0.2	171	62.40%
	>0.2	103	37.59%
PDW	<18	260	94.89%
	>18	14	5.1%

Table IV showed, 62% (171/274)cases had PCT fall to < 0.2. MPV had fallen to < 9 fl in 23% (62/274) cases during their severe illness. PDW was <18 in 95% (260/274) of cases whereas only 5% (14/274) of cases PDW was increased.

Discussion

Dengue and its severe manifestations, DHF and DSS, are an emerging public health concern. DHF is characterized by severe hemorrhagic manifestations related to thrombocytopenia. The clinical diagnosis of DHF particularly in the initial phase of infection, is not simple. Laboratory findings such as platelet count and other platelet indices in DHF cases are frequently detected by day 3 or 4 of the illness.[12]

In the present study, majority 128(46.72%) dengue patients, were 16-35 years of age. A study conducted by Khan et al showed 41 (38.3%) dengue patients in the age group of 15 – 30 years which was similar to our study.[13]

Male female ratio of the current study was 1.6 : 1, which was consistent with the study conducted by Asmabegaum et al and Khan et al.[13,14]

NS1 Ag circulates at high levels in the blood during the first several days of illness. Therefore, the presence of the NS1 antigen in a person signals the acute phase of illness.[14] According to the study by Asmabegaum et al and Trupti et al, most patients were found to be NS1 antigen positive in acute phase, similar to our study where 70% of samples were positive for only NS1 and the remaining were positive for other serological markers.[14,15]

The current study revealed a relation between thrombocytopenia (Platelets < 150 × 103/mm3) and the severity of dengue fever. The platelet counts significantly dropped in DHF patients during hospitalization. When platelets count below 100000 the patients showed severe hemorrhagic condition. In our study we found 54% of cases of thrombocytopenia. Within this, 17.88% of cases had a platelet count <100000 were admitted to hospitals with severe symptoms. The results were consistent with several previous studies.[16,17] In the acute phase of dengue illness, thrombocytopenia occurs due to bone marrow depression.[12]

Low MPV with less platelet count suggests bone marrow suppression as a mechanism of thrombocytopenia. Increased MPV in the presence of persistent thrombocytopenia indicates peripheral destruction.[18] In our study, we revealed that MPV was decreased when the patient's conditions were severe. Thrombocytopenia with low MPV was linked to increased disease severity parameters and hemorrhage. These findings indicated that bone marrow suppression by the dengue virus could be one of the causes of thrombocytopenia and bleeding in dengue fever. Similar findings were found by Khandal et al and Eldor et al.[18,19]

PDW is increased (>18) in hyper-destructive patients when compared with hypo-productive thrombocytopenic patients. The patients with thrombocytopenia with increased PDW reflect active bone marrow compensation with the release of young platelets.[20] In our study, the PDW increased by only 5% cases during the recovery phase and few in severe condition. No relation was found between PDW and disease severity in our study. A study by Crinath et al revealed high PDW at only the later stage of dengue infection.[12] That is similar to our study in dengue-positive patients. The PDW becomes higher in the recovery phase representing increased production from the bone marrow and release into circulation.[12]

PCT and MPV had similar effects on the acute stage of dengue as MPV and platelet count. PCT decrease in severe condition and may cause bleeding.[12] In our study, we found that PCT decreased 62% of cases in severe thrombocytopenia. Which is consistent with other studies Krishnamurthy et al and Kumar et al.[21,22]

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 37-41

Our analysis showed a significant correlation between low platelet count, MPV and PCT in severe condition of dengue infection. Similar findings were revealed by Krishnamurthy et al and Kumar et al.[21,22] Low MPV and increased PDW during the course of the infection suggested that hypo production and hyper-destruction are the two possible mechanisms of thrombocytopenia in dengue infection.[20] These platelet indices showed sensitivity to dengue fever, thus reflecting a predictive marker for diagnosing dengue fever in an endemic area.

Limitation

This study had some shortcomings. First, data from available medical records were used in this study. As a result, some clinical data were insufficient, including the virus type, the patient's comorbidities, and the day of illness (or fever). Additionally, as this study was conducted in a hospital and involved patients with severe infection, its findings could not be generalized to all dengue patients in the community.

Conclusion

Platelet indices play a significant role in early predictive diagnosis and severity of dengue in an endemic area. With the help of these parameters, we can diagnose the severity of dengue infection early in the endemic area. Early diagnosis and timely management can reduce both mortality and morbidity.

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Disclosure

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Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 37-41

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ORIGINAL ARTICLE

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Social Media's Effects on Bangladesh's Residential Medical Students

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ABSTRACT

Background: *Medical students especially those who all are residing in the dormitory of cantonment area and not allowed to go outside without prior permission are likely to be more prone to social media. But routine motivation and creating awareness regarding the negative effect of social media and education how to responsibly use for academic purpose can be beneficial.* The aim of the study was to find out the impact of social media by the undergraduate medical students of 5 residential army medical colleges of Bangladesh.

Materials and methods: *We conducted the study by providing structured questionnaire to assess the involvement of the students in internet based social media with positive and negative impact along with academic outcome role in medical students from 1st to-5th years of the five Army medical colleges. We also focused whether this study how far act as an indirect guidance and lesson for judicious use of social media.*

Results: *We found that, although almost all the medical students are attached with social media specially Facebook (100%) but (74%) students realized harmfulness of it use and 48% of medical students brilliantly used it for academic purposes. Routine motivation and creating awareness by the college administration have very little impact. Despite having significant knowledge of the risks associated with online social media (78%) and its addiction, medical students are still unable to take control.*

Conclusion: *The study reveals that time spent on social media and excessive usage of social media negatively impacts student's academic performance.*

Key words: Internet; Social media; Residential medical student.

Introduction

One of the most revolutionary developments of the current age is social media, which allows us to stay in touch with friends and family who live all over the world. It's a fantastic tool for socializing, improving daily life, keeping up with our favorite celebrities, learning about current events, and keeping up with the most rapidly advancing medical science. Social media's very quick expansion is accelerated by its simplicity of use, convenience of sharing, higher rate of popularity, and accessibility via PCs, mobile devices, and tab-lets.[1] A sizable percentage of young individuals, particularly medical students, acquire social media addictions that interfere with everyday life and have a detrimental impact on learning even in controlled contexts. The segments of social media users who are addicted publish practically everything that occurs in their daily lives on their accounts, and they spend the majority of their waking hours scrolling through various social media sites.They have accounts on every social media platform and are social media addicts.[2]

Nowadays, medical education extends beyond the traditional classroom, and social media is recognized as an essential link between informal and formal learning since it keeps students intensely focused on instructional material outside of the traditional classroom.[2-5] Despite their continued expansion, some educators believe that social media do not provide effective learning opportunities. Medical educators are urged to put the students first in order to reduce the distance between students and teachers. To ensure the student's success, it will be our duty as educators to put the student first, utilize SNSs to the fullest extent possible and incorporate them into conventional web-based management systems and existing curriculum.

The aim of the study was to find out the impact of social media by the undergraduate medical students of 5 residential army medical colleges of Bangladesh.

Materials and methods

This descriptive type of cross sectional study was conducted during the period of July 2022-to November 2022. The structured questionnaire were distributed among the five 5 Army Medical Colleges students in equal ratio from the first year to fifth year during the data collection period. No administrative or social pressure was executed

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Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 42-45

among the students during data collection. Sample size was 624 medical students of 5 Army Medical Colleges.

Data collection procedure: Self–administered structured written questionnaire was given among the 1st year to 5th year medical students of all 5 medical colleges. Students were asked to fill the preferred box without biasness.

Data presentation and analysis: After being collected, the questionnaire was carefully examined, manually coded, and processed and analyzed using SPSS software in accordance with the goal. These coded data were subsequently employed to provide outcomes that directly addressed the study topic.

Results

In the present study, 624 medical students from 5 Army Medical Colleges filled the supplied structured questionnaire forms circulated through courier service. In the present study, there were 223 (35.7%) male and 401(64.3%) female students. The average age of participants was 21.6 years and Almost 22.8% students irrespective of sex were overweight with a BMI >24.9 and (0.04%) are obese with a BMI >30.0

624 people gave their opinions on this statement, 47.9% strongly agreed that social media is an important component of the modern educational system.

Table I Distribution of the participants by their choice about the positive effect of social media for medical students (n=624)

Verifications of the beneficial effects of social media	SA f (%)	A f (%)	NAND f (%)	D f (%)	SD f (%)
The modern educational system must include social media.	299(47.9%)	298(47.7%)	11(1.8%)	10(1.7%)	06(0.9%)
Social media provides me more useful information related to my study	162(26%)	359(57.6%)	57(9.1%)	11(1.7%)	35(5.6%)
We can share, exchange academic note with my classmate through social media	396(63.1%)	203(33%)	21(3.4%)	1(0.1%)	3(0.4%)
Social media assists us in taking good notes throughout exam season.	123(20%)	264(42%)	70(11%)	63(10%)	104(17%)
Social networking occasionally enables me to learn things that are completely impractical in real life.	211(34.5%)	315(50%)	50(8%)	14(2%)	34(5.5%)

SA=Strongly Agree, A = Agree, NAND= Not Agree, Not Disagree, D=Disagree, SD=Strongly Disagree.

Social media is an essential part of modern educational system, 26% were strongly agreed with this opinion. In response of the question of exchange academic note with my classmate through social media 63.1% strongly agreed having same number 624 respondents. Regarding the exam season social media helps us to take good preparation in response to this 20% were strongly agreed. Social media sometime helps me to know more than before which is not at all possible in practical life. A good number of percentages (34.5%) opined strongly in favor of opinion (Table I).

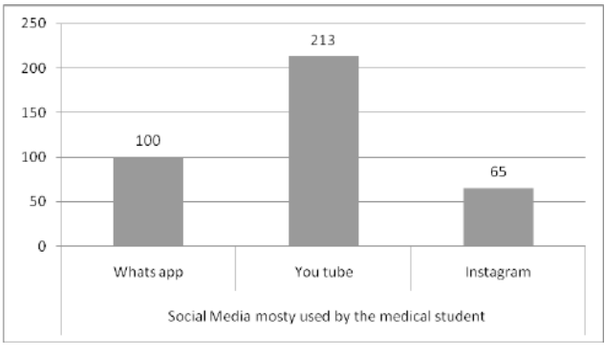

Figure 1 Distribution of the respondents by their opinion about that the most commonly used applications (n=624)

The most of the respondents opined 1-2 hr daily during academic regular session.

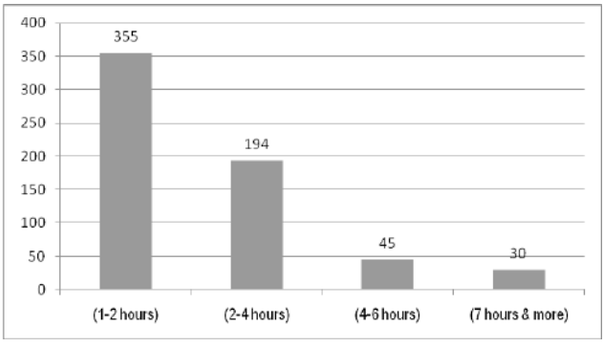

Figure 2 The duration of daily network usage for medical students (n=624)

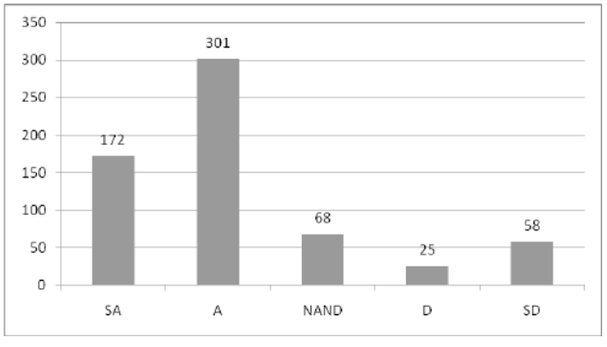

Figure 3 Impact on unwanted information or picture for medical students (n=624)

Unwanted information or picture produces negative psychological impression on medical students. 25.6% strongly agreed.

It is very clear from figure 2 that 355 (57%) of students spend 4 to 6 hr on internet daily and the daily frequency of social media or internet based site visits, is approximately 475(76%). Students confessed that they visit social media more than 4 times/day but most striking feature is 25 (4%) students use more than 7 hr/day on other sense they are addicted. In the present study,125(20%) students were engaged in the physical activity of more than 30 min daily while 151(24%) students were having physical activity of less than 30 min.

Journal of Army Medical College, Chattogram
Volume 5 Issue 2 December 2022; 42-45

Figure 1 clearly shows that, excluding Facebook, the most frequently utilized programs were WhatsApp, YouTube, and Instagram. A small number of students also utilized Skype, Omegle and Tinder in addition to these applications. The students played Pubg (12.3%), FIFA (5.6%), counter-strike (3.6%) and cash of clans (3.6%) the most frequently when questioned about the impact of social media.

Discussion

Nowadays, social media, particularly Facebook, is well-known in the online community.The way we communicate has significantly altered. Social media is made up of a variety of websites and applications that give users the chance to share content, express sentiments and ideas and connect with a huge audience of other media users.[6] Over the past ten years, social media and its applications have grown significantly in popularity among students and have become an essential part of their everyday lives. Researchers have noticed a remarkable increase in the usage of social networks as teaching resources in the medical field.[7]

In the present cross sectional study, out of 624 students 401 (64%) were females and 174 (36%) were males, which is very much similar to M Madaiah et al. findings in Indianmedical college students of MVJ, where 408 students. 274 (67.2%) were females and 174 (32.8%) were males.[8] These findings suggest that the trend of female students in medical education is higher and similar both in India and Bangladesh. In the present study, target age group of this study was 17-26 yearswith average age is 21.6 years during medical graduation period.

Facebook is the most popular social media platform, with approximately 100% of members, despite being founded by Mark Zuckerberg in 2004.[9] In this study, 76.1% of medical students reported utilizing social media for 4-6 hours every day, most frequently, roughly. 32% of the time spent using social media was for pleasure. 26.6% of people report feeling bored, 9.6% report feeling sleepy, and 9.6% report feeling bored, according to a 2017–2018 survey that was considerably different, most frequently, roughly. In terms of typical usage times, leisure time accounted for 26.6%, boredom for 12.9%, and bedtime for 7.6%. 340 respondents reported utilizing social media more than four times per day.

The extended duration of daily online network usage (1-2 hours, 68.5%) in the similar study conducted in the years of 2017 and 2018 may be attributable to electric devices that enable simple and welcoming access, allowing medical students to use social networks more frequently even in class.[10]

Currently, 56% of respondents (n=624) use social media for academic purposes during their study time. On the other hand lahmar TA reported in Iraqi students 2 hours per day but some more than 6 hours.[11] Every new technology has both positive and negative effects. In Table I addressed the positive effects of SM for medical students. The researcher found that most of the respondents were agreed and strongly agreed 597(95.6%) with the positive effect.

Every new technological advancement has both advantages and disadvantages. The beneficial impacts of SM for medical students were demonstrated in Table I above. The researcher discovered that the majority of respondents—597, or 95.6%—were in favor of the positive effect (n=624). Memon AR et al mentioned that progressive increasing rate of Facebook use gives new dimension. Psychiatrists introduced the term Facebook addiction because it damages the sleeping habits and health's and abilities to interact and interest to studies.[12]

The researcher made a few recommendations for reducing social media's detrimental effects. In addition to the government's introduction of a formal rule, some other studies have already suggested that medical students follow ethical guidelines when using SNSs. It would be necessary to have rules for sharing instructional content on social media, including ethical conditions (Complete secrecy and respect for patient rights). Many nations have already published regulations governing the use of SM in the workplace, including the American Medical Association policy.[13]

Conclusion

Social media specially, Facebook and You tube, websites and applications as well as the number of operator medical student using them have witnessed a dramatic increase over the last decade and became an integral part of students' daily life. Effective action must be taken right away to save the younger generation.

Disclosure

Both the authors declared no competing interests.

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