

Pattern of Non-Communicable Diseases among the Admitted Patients in a District Level Hospital of Bangladesh

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Abstract

Background: Non-communicable Diseases (NCD), particularly cardiovascular diseases, cancer, diabetes and chronic respiratory disease, have emerged as the leading threat to mankind worldwide. Likewise in Bangladesh, an increasing trend of incidence of NCDs has been observed and already they have become major public health concern. Hence, we aimed to study the pattern of NCDs among the admitted patients at an Upazila Health Complex (UHC) in Bangladesh.

Methods: In this retrospective study, data of in-hospital patients admitted from January 2018 to June 2018 in UHC, Chhagalnaiya, Feni was analyzed. Data on age, gender, occupation, hospital admission/discharge and diagnosis of disease was obtained from the hospital register. Diseases were categorized into NCD or communicable disease using the World Health Organization's International Classification of Diseases (ICD) coding system.

Results: 1,367 adult patients with different diseases were admitted into the medical ward over the study

period of six months (mean age 57.4 ± 17.9 years; 61.3% male and 38.7% female). There were 904 cases of various NCDs constituting 66.1% of total admissions. The number of cases of NCDs was two times more compared to CDs (ratio 2:1). In all six months, admissions due to NCDs were significantly higher compared to communicable diseases CDs ($p = 0.0001$). Among the admissions due to NCDs, more than half (51.3%) were aged between 50 to 69 years. In terms of pattern of disease, cardiovascular diseases were the number one cause for hospital admission followed by endocrine disorders.

Conclusion: This study found that the burden of NCDs has increased among the admitted patients in an UHC. These findings could be useful to draw the attention of health authorities to adopt preventive strategies against NCDs even at Upazila level.

Keywords: Non-communicable Diseases, Upazila Health Complex, Bangladesh.

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Introduction:

Non-communicable diseases (NCDs) are considered as the leading cause of morbidity and mortality globally¹.

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It is estimated that 40 million people die in each year because of NCDs, approximating 70% of all deaths worldwide. Among the NCDs, cardiovascular diseases account for 17.7 million deaths annually, followed by cancers (8.8 million), chronic respiratory diseases (3.9 million), and diabetes (1.6 million). These four groups of diseases account for over 80% of all premature NCD deaths².

The epidemic of NCDs poses catastrophic health consequences for individuals, families and

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communities, and threatens to triumph over health systems. The economic burdens associated with NCDs make the prevention and control of these diseases a major development issue for the 21st century. Most of these premature deaths from NCDs are attributed to modifiable behavioral risk factors like tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol, and metabolic risk factors like raised blood pressure, overweight/obesity, hyperglycemia and hyperlipidemia are also attributed to NCDs¹.

Burden of NCDs and its mortality is observed to be more in lower and middle income countries. Available data demonstrate that nearly 80% of deaths due to NCDs occur in low and middle income countries². In recent years, an epidemiological shift in morbidity and mortality from infectious diseases or malnutrition to NCDs has occurred in many low and middle income countries, including Bangladesh. NCDs, particularly cardiovascular diseases, cancer, diabetes, and chronic respiratory disease have already become major public health concern in Bangladesh³. Both NCDs and their risk factors are showing an increasing trend. These risk factors are tobacco use, low intake of fruits and vegetables, physical inactivity, obesity, raised blood pressure, and raised blood glucose and cholesterol³. Evidence shows that the detection and treatment rate of diabetes mellitus and hypertension is also inadequate among Bangladeshi population^{4,5}. Most important fact is that NCDs and their risk factors are prevalent in both urban and rural areas of Bangladesh⁶.

Considering the increasing burden of NCDs in Bangladesh, this is the high time to adopt preventing strategies. In this regard, the data on NCDs are very important. However, only limited data are available limited from tertiary level hospitals. Hence, we aimed to study the pattern of NCDs among the admitted patients at an Upazila Health Complex (UHC) in Bangladesh.

Methods:

This is a retrospective study. The data of in-hospital patients admitted from 1st January 2018 to 30th June 2018 in UHC of Chhagalnaiya was analyzed. This UHC mainly caters the patients from Chhagalnaiya and surrounding areas. Chhagalnaiya is an Upazila of Feni District in the Division of Chittagong. It has a population of 170,524 (males 49.79% and females 50.21%).

All patients aged more than 18 years of both sexes admitted during this period were included. Children and adolescence patients aged <18 years were excluded. Data on age, gender, occupation, hospital admission/discharge and diagnosis of disease was obtained from the hospital register. Diseases were categorized into NCD or communicable disease (CD) using the World Health Organization’s International Classification of Diseases (ICD) coding system.

There were two objectives of this study - to find out the ratio between NCDs and communicable diseases (CDs) and to study the pattern of NCDs. All analyses were done using Statistical Package for the Social Sciences (SPSS) software version 18 (Chicago, IL, USA). Comparison of variables was performed using the two-tailed paired t-test. p < 0.05 was considered statistically significant.

Results:

1,367 adult patients with different diseases were admitted into the medical ward over the study period of six months. The mean age of the admitted patients was 57.4 ± 17.9 years. Percentage of male patient was more compared to female patients (61.3% male and 38.7% female).

During the study period, there were 904 cases of various NCDs constituting 66.1% of total admissions. The number of cases of NCDs was two times more compared to CDs (ratio 2:1). The ratio was the highest in February. In all six months, admissions due to NCDs were significantly higher compared to CDs (p = 0.0001). The total result is summarized in Table-I and presented in Figure-1.

Table-I
Admissions due to non-communicable and communicable diseases

Month	NCDs		CDs		Total admissions	NCD/CD Ratio
	n	%	n	%		
January	130	66.0%	67	34.0%	197	1.9
February	118	69.0%	53	31.0%	171	2.2
March	131	62.4%	79	37.6%	210	1.7
April	173	66.0%	89	34.0%	262	1.9
May	190	67.4%	92	32.6%	282	2.1
June	162	66.1%	83	33.9%	245	2.0
Total	904	66.1%	463	33.9%	1,367	2.0

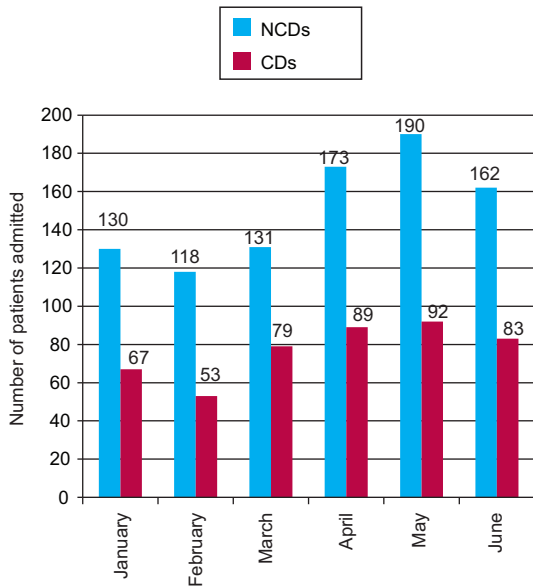


Fig.-1: Comparison of admissions due to non-communicable and communicable diseases

There were several findings regarding the pattern of NCDs. Among the admissions due to NCDs, more than half (51.3%) were aged between 50 to 69 years (Table-II and Figure-2). In terms of pattern of disease, cardiovascular diseases were the number one cause for hospital admission followed by endocrine disorders (Figure-3).

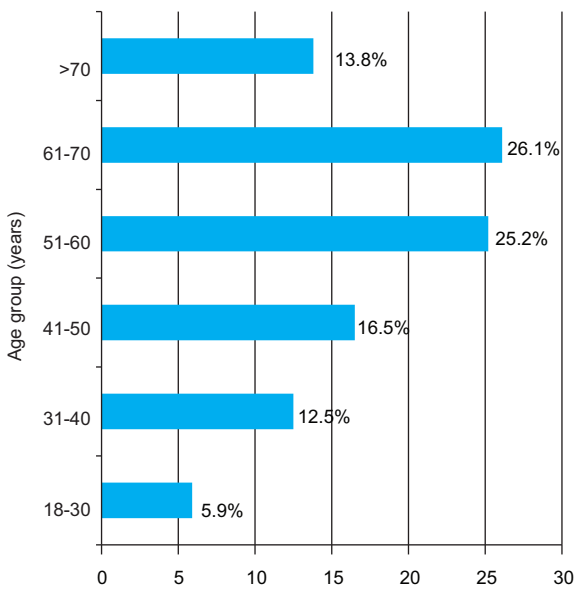


Fig.-2: Percentage of patients admitted due to non-communicable diseases by age groups

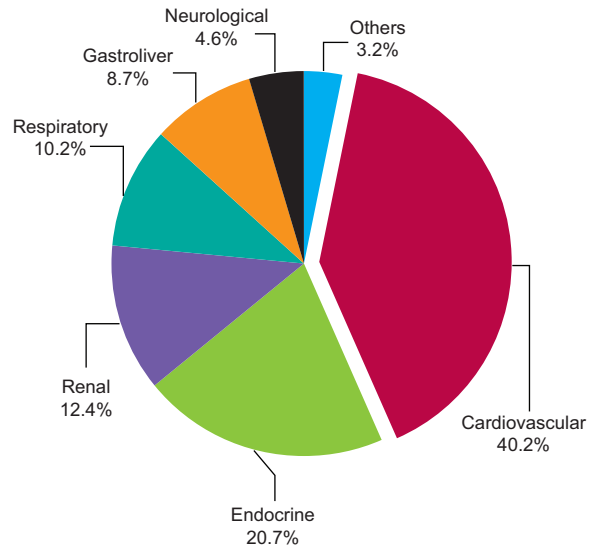


Fig.-3: Percentage of patients admitted due to types non-communicable disease

Discussion:

This single-center, retrospective study found that NCDs account for 66.1% of total admissions and the number of cases of NCDs was two times more compared to CDs (ratio 2:1). A number of studies performed in low and middle income countries have also reported similar findings⁷⁻¹¹. Kujur et. al. reported 56.5% admission cases due to NCDs in a tertiary care hospital of Ranchi, Jharkhand, India⁷. Whereas, Ogunmola et. al. found 68.4% NCDs admissions in the medical wards of a tertiary health center in a rural community of Ekiti State, Nigeria⁸. Excessive tobacco use, low intake of fruits and vegetables, physical inactivity, obesity, hypertension, high blood glucose, dyslipidemia all these factor are creating this huge burden of NCDs either isolated or in combination.

Advancing age is a strong non modifiable risk factor for most NCDs. In our study, more than half (51.3%) of admitted NCD patients were aged between 50 to 70 years. One study performed in Faridpur Medical College Hospital by Tarafder BK et al. also revealed similar findings¹². So, the combination of longer lives and greater burden of NCDs is demanding new schemes and policy to mitigate the upcoming outbreak.

Cardiovascular diseases were the largest contributor to NCDs in this study accounting for 40.2% of all the NCDs reported. Endocrine and renal diseases together constituted about a third of all NCDs in this study. Previously, Akubudike et. el. did a retrospective study in

the medical ward of a tertiary center in Nigeria and reported same trend¹³. Again, evidences show that the detection and treatment rate of DM and HTN is inadequate among bangladeshi population .¹⁴ So lack of awareness may contribute to this huge statistical data.

This study has some limitations. Notably, this is a single-center study and performed in an Upazila level hospital. So the results can not be generalized to the whole population of Bangladesh. The tenure of the study was also limited and as it was a retrospective study, there might be some patient selection bias . So Nationwide and large-scale studies are required to obtain more information regarding this matter.

Conclusion:

NCDs diseases account for significant cause of admissions in Upazila Health Complex, Chhagalnaiya, Feni and it appears to have an upward trend. Cardiovascular, endocrine and renal systems are the most affected systems. Though this study is a snapshot of NCDs, these findings could be useful to draw the attention of health authorities to adopt preventive strategies against NCDs even at Upazila level.

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