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Pattern, duration of stay, and outcomes of medical admissions: a report from teaching community hospital in Assir region, Saudi Arabia

Mushabab A. Al-Ghamdi[a] and Aref A. Bin Abdulhak[b]

aInternal Medicine Department, University of Bisha, Bisha, Kingdom of Saudi Arabia; bDivision of Cardiovascular Medicine, Department of Internal Medicine, University of Iowa Carver College of Medicine, Iowa City, IA, USA

ABSTRACT

Background: Population-based studies are the gold standard to understand the burden of different diseases, plan health care policy and resource allocation, and provide an accurate estimate of disease several disease indices including mortality. However, population-based studies are difficult to undertake in a resource-limited situation where no robust data bases and disease registries are available. Therefore, hospital-based cohorts may be used to inform about the community health.

Objectives: We sought to study the pattern of disease causing admission, hospital stay, and outcomes of medical admissions to King Abdullah Hospital in Bisha in order to inform clinicians, public health professionals, and policymakers about the current status of diseases within the community in Bisha.

Methods: This is a cross-sectional study including all adult patients aged above 18 years who were admitted to King Abdullah Hospital in Bisha, Assir region, to medical services including general internal medicine, general cardiology, nephrology, gastroenterology, rheumatology, and neurology during the study period between 1 June 2015 and 31 May 2016. Common causes of hospital admission, outcomes of hospitalization, and length of stay were estimated and the data were presented as frequency and percentage for categorical valve and mean and standard deviation for continuous variables.

Results: Cardiovascular diseases including stroke are considered the leading cause of hospital admission in a teaching community hospital in Bisha, Assir region. Diabetes mellitus and hypertension are prevalent comorbidities among hospitalized patients. Majority of admitted patients have improved and discharged home (83.3%). However, 6.7% were transferred to another facility, 4.1% have left against medical advice, and 5.9% died.

Conclusion: Health-related data bases and disease registries are urgently needed to precisely estimate the burden of cardiovascular disease in Assir region in Saudi Arabia. Lifestyle changes, healthy diet, aggressive management of hypertension and diabetes within the community, and allocating necessary resources are urgently to combat the growing burden of cardiovascular disease.

1. Introduction

Population-based studies are the gold standard to understand the burden of different diseases, plan health care policy and resource allocation, and provide an accurate estimate of disease incidence, prevalence, morbidity, and mortality. However, population-based studies are not available from most parts of the world [1] due to many reasons including lack of reliable data bases and registries, cost, and lack of expertise. Therefore, hospital-based cohorts may provide useful information about disease burden within the community [2], and help clinicians, public health professionals, and policymakers to make informed decisions in regard to population and individual patient care and planning health care delivery system [3].

The Saudi Arabian health care system is ranked among the best in the Middle East region [4]. However,

burden of disease and causes of hospitalization and death within the community remains largely unknown from most parts of Saudi Arabia. Moreover, little to none is known about pattern of disease causing hospital admissions and outcome of hospitalization in Assir region. Therefore, we sought to study the frequency of disease causing admission, hospital stay, and outcomes of medical admissions to King Abdullah Hospital in Bisha in order to inform clinicians, public health professionals, and policymakers about the current status of diseases within the community in Bisha.

2. Methods

2.1. Setting

The study was undertaken at King Abdullah Hospital in Bisha, Assir region, Saudi Arabia, in the period

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between 1 June 2015 and 31 May 2016. King Abdullah Hospital is a teaching community health care hospital serving a population of around 330,000 people. Medical services at King Abdullah Hospital include general internal medicine, general cardiology, nephrology, gastroenterology, rheumatology, and neurology.

2.2. Study population

This is a retrospective cross-sectional study that included all adult patients aged above 18 years who were admitted to medical services at King Abdullah Hospital in Bisha, Assir region, during the study period between 1 June 2015 and 31 May 2016. The study was approved by the ethics committee of the King Abdullah Hospital.

Medical information unit computerized databases at King Abdullah Hospital were used to retrieve demographic information, comorbid conditions, duration of hospital stay, and patients' outcomes (improvement, referral, left against medical advice, death).

2.3. Statistical analysis

Continuous variables are presented as mean and standard deviation and tested using analysis of variance. Categorical variables are presented as frequency and percentage and tested using a chi-square test. Two tailed p-value of ≤ 0.05 is considered statistically significant.

All data analyses were performed using a computer-based software, statistical package for the social sciences (SPSS Inc., Chicago, IL) version 16.0.

3. Results

Between 1 June 2015 and 31 May 2016, 1041 patients were admitted to medical services at King Abdullah Hospital. Table 1 lists the baseline characteristics of the included cohort. Males constitute 57.9% and females 42.1% of the admitted patients. Mean age and standard deviations were 56.2 and 22.4 years, respectively. Cardiovascular diseases including stroke were the most common reason for admissions (34.4%), followed by infections (16%), and then blood disorders (14.7%). Figure 1 lists the main diagnoses responsible for hospital admission. Diabetes mellitus and hypertension were by far the most prevalent comorbid conditions among hospitalized patients followed by ischemic heart disease, stroke, and end-stage renal disease.

For the vast majority of admitted patients, the outcome of hospitalization was improvement and hospital discharge (83.3%). However, 6.7% were transferred to another facility, 4.1% have left against medical advice, and 5.9% died. The mean duration and standard deviation of hospital stay were 5.9 and 12.6 days, respectively. There was no significant difference in length of stay between females (5.8 days, confidence interval: 4.8, 7.0) and males (5.9 days, confidence interval: 4.7, 6.8), p-value = 0.8;

Table 1. Baseline characteristic of study cohort variables [1].

| Variables	Level	Number (%)
Ward	Coronary care unit	59 (5.7)
	Female medical ward	389 (37.4)
	Intensive care unit	69 (6.6)
	Intermediate unit	22 (2.1)
	Male medical ward	505 (48.2)
Gender	Male	603 (57.9)
	Female	438 (42.1)
Nationality	Saudi	937 (90)
	Non-Saudi	104 (10)
Age-group (years)	Less than 25	112 (10.8)
	25–50	284 (27.3)
	50–75	387 (37.2)
	75 and more	258 (24.8)
Comorbidities	Diabetes mellitus	408 (39.2)
	Hypertension	441 (42.4)
	Ischemic heart disease	179 (17.2)
	End-stage renal disease	79 (7.6)
	Stroke	90 (8.6)
	Asthma	31 (3)
	Epilepsy	10 (1)
	Chronic liver disease	17 (1.6)
	Rheumatoid arthritis	6 (0.6)
	Systemic lupus erythematosus	1 (0.1)
	Hypothyroidism	28 (2.7)
Outcome	Improved	867 (83.3)
	Referred	70 (6.7)
	Left against medical advice	43 (4.1)
	Died	61 (5.9)
Mean age (standard deviation)	56.2 years (±22.434)	
Mean duration of stay (standard deviation)	5.9 days (±12.653)	
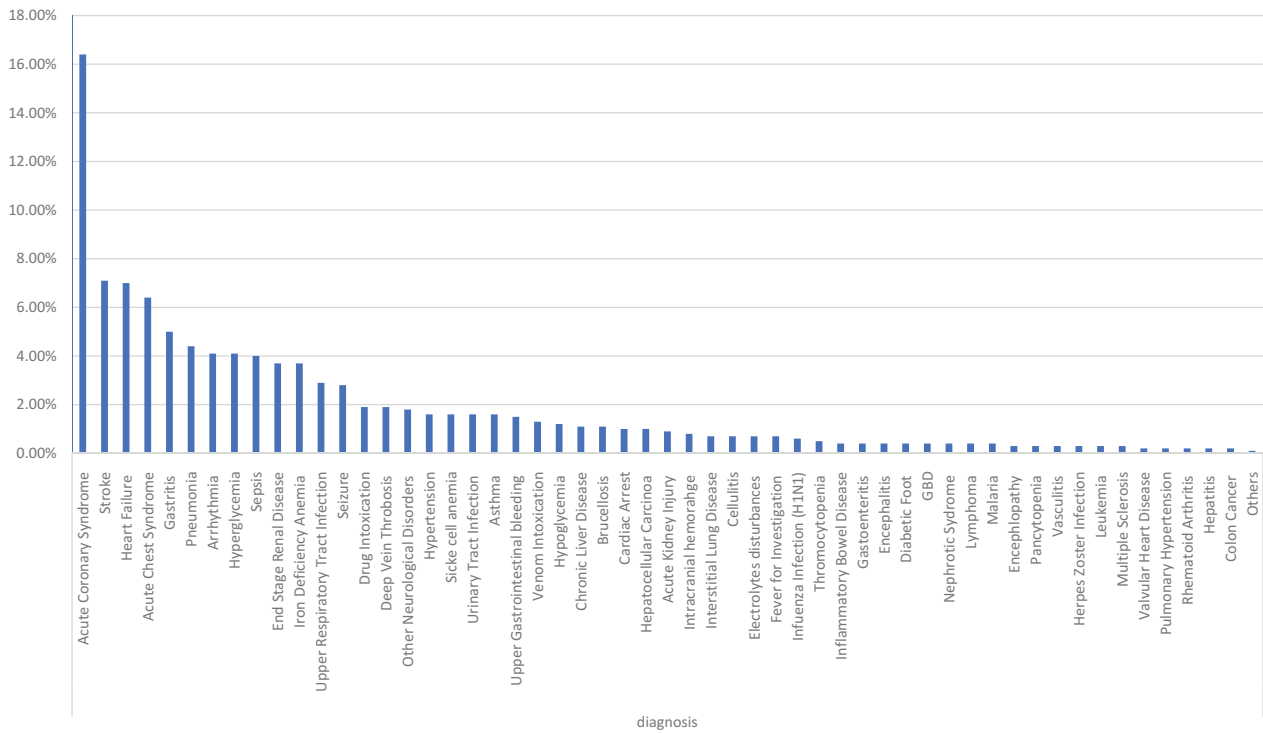
Figure 1. Distribution of diagnoses responsible for hospital admission.

Saudi National (5.8 days, confidence interval: 5.1, 6.6) and non-Saudi National 6.3 days, confidence interval: 2.6, 10.0), p-value = 0.6; and the four categories of age (<25, between 25 and 50, between 50 and 75, and >75), p-value = 0.2. However, patients who died had prolonged hospital stay (17.6 days, confidence interval: 8.4,26.8). There was no statistically significant difference in the outcome by gender (p-value = 0.9) or nationality (p-value = 0.8).

4. Discussion

Our study, the first from Assir region, showed that cardiovascular diseases including stroke were the most common cause of hospital admission followed by infection, and diseases of the blood. Diabetes mellitus and hypertension were by far the most common comorbidities, and the majority of hospitalized patients have discharged home in an improved condition. Current study provides an imperative insight into a noted shift of disease burden toward cardiovascular disease including stroke as being the most responsible cause of hospital admission.

Several other studies from different parts of the developing world have shown similar results of a shift in the disease pattern responsible for admission toward cardiovascular diseases [3,4].

Globalization in term of adoption of western lifestyle by many people in the developing world, supermarket growth, urbanization, and sedentary lifestyle has certainly contributed to the increased prevalence of cardiovascular disease [5]. Moreover, prevalence of hypertension, the leading risk factor for illness worldwide, has increased dramatically in many developing countries in part related to globalization and increase prevalence of obesity.

Although the study was not designed to specially address disparities in health care, there appears to be no significance difference in the hospitalization outcome, length of stay by gender. This finding may indicate lack of gender disparities in the current health care system in Assir region. Although the sample size is too small to make a meaningful comparison based on nationality, there was no significance difference in the outcome between Saudi Nationals and non-Saudi Nationals.

4.1. Limitations

Our study has several important limitations. The study is cross sectional, retrospective, observational in nature and bears all inherited weaknesses of such study design. Moreover, the sample size is small. However, this is the first study from Assir region and has provided important insights into the disease status in the region.

5. Conclusion

Cardiovascular disease including stroke are considered the leading cause of hospital admission in a teaching community hospital in Bisha, Assir region.

Diabetes mellitus and hypertension are prevalent comorbidities among hospitalized patients. Health-related data bases and disease registries are urgently needed to precisely estimate the burden of cardiovascular diseases in Assir region. Lifestyle changes, healthy diet, aggressive management of hypertension and diabetes within the community, and allocating necessary resources are urgently to combat the growing burden of cardiovascular disease.

Disclosure statement

Funding

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