Coronary Events in Bahrain: Descriptive Study

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Background: In Bahrain, cardiovascular death accounts for about 19.5% annually. Prevalence of Ischemic Heart Diseases (IHD) was 174.4 per 100,000 populations. Coronary events found to be the fourth leading cause of discharge from Salmaniya Medical Complex (SMC) in 2005.

Objective: To evaluate the pattern and profile of patients with coronary events.

Setting: Salmaniya Medical Complex, Kingdom of Bahrain.

Design: Retrospective Cross-sectional Study.

Method: Two hundred twenty-six patients were selected by a systematic random sampling technique from patients admitted with coronary events in SMC from 1 January 2004 to 31 December 2004. Data were reviewed and documented from the medical record.

Result: One hundred thirty-eight (61.1%) suffered from unstable angina, 66 (29.2%) had myocardial infarction and 22 other coronary events. Pre-existing cardiovascular diseases (previous IHD, atherosclerotic diseases, other heart diseases and stroke) suffered by almost half of the patients. Hypertension was reported in 97 (42.9%) patients, while diabetes was reported in 82 (36.3%) patients.

Conclusion: More than two-third of cases diagnosed with coronary events had unstable angina and nearly one-third of cases had myocardial infarction. The majority of patients had pre-existing morbidities, which include diabetes mellitus, hypertension and chronic cardiac conditions.

The group of clinical symptoms that is consistent with myocardial ischemia is known as coronary events; these include unstable angina (UA), non-ST segment elevation myocardial infarction (NSTEMI) and ST segment elevation myocardial infarction (STEMI)[1].

The annual incidence of angina for those aged 30-70 years in Britain was projected to be 1.1 cases per 1000 males and 0.5 cases per 1000 females[2-4]. Unstable angina annual incidence was around 6

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cases per 10,000 people in other industrialized countries[5-8]. The incidence of chest pain of ischemic origin is higher among older male population and could reach up to 5% among males aged 50-70 years, as reported in Sweden[9].

In Bahrain, data on the incidence and prevalence of coronary events are insufficient according to the annual health statistics 2005. Cardiovascular disease accounts for 19.5% of death[10].

Ischemic Heart Disease (IHD) is a common health problem in Bahrain; it ranks the fourth leading cause of discharge from SMC in 2005[10].

The total discharged patients in 2004 was 44,900, 402 (0.9%) patients had acute myocardial infarction, 123 (0.27%) had chronic ischemic heart diseases and 97 (0.21%) were classified as other acute ischemic heart diseases[10].

The aim of this study is to evaluate the prevalence of coronary events, to identify the profile of patient diagnosed with coronary diseases and to identify some risk factors predisposing to coronary events.

METHOD

A retrospective cross-sectional study on sample of patients admitted to the cardiology department, Salmaniya Medical Complex diagnosed with coronary event from 1 January 2004 to 31 December 2004.

One thousand one hundred thirty patients admitted with coronary event during the study period. One in five systematic samples was used to select the patients; therefore, 226 patients were selected.

The definitive diagnosis of coronary events (unstable angina, myocardial infarction and coronary thrombosis) was confirmed from a discharge note written by the treating physician. Data documented from the patients' file include personal data, medical history (co-morbidities), final diagnosis, duration of stay and laboratory results.

Data managed using SPSS version 13.

RESULT

Two hundred twenty-six patients were included in the study and their data were reviewed.

Table 1 shows the main characteristics of the study population by type of coronary events. The mean age of patients was 57.3 ± 13 years. Hundred fifty-three (67.7%) patients were Bahraini and 149 (65.9%) were males. Data analysis in this table shows that patient's gender and nationality were significantly associated with type of coronary events (p=0.032, 0.023 respectively).

Table 1: Personal Characteristics of Coronary Diseases Patients

	Myocardial Infarction	Unstable Angina	Other Acute Ischemic Heart Diseases	Total (%)
Bahraini	36 (54.5)	100 (72.5)	17 (77.3)	153 (67.7)
Non-Bahraini	30 (45.5)	38 (27.5)	5 (22.7)	73 (32.3)
Male	52 (78.8)	84 (60.9)	13 (59.1)	149 (65.9)
Female	14 (21.2)	54 (39.1)	9 (40.9)	77 (34.1)
Age Group				
30-40	4 (6)	10 (7.3)	0 (0)	14 (6.2)
40-50	22 (33.3)	32 (23.2)	3 (13.6)	57 (25.2)
50-60	17 (25.8)	33 (23.9)	9 (40.9)	59 (26.1)
60-70	11 (16.7)	34 (24.6)	4 (18.2)	49 (21.7)
> 70	12 (18.2)	29 (21.0)	6 (27.3)	47 (20.8)

Table 2 shows that 138 (61.1%) patients were admitted suffering from unstable angina, 66 (29.2%) had myocardial infarction and 22 (9.7) other Acute Ischemic heart diseases. It was noted that in 50% of the cases the site of infarction was not specified.

Table 2: Distribution of Coronary Diseases in Patients Admitted during 2004

Diagnosis	Number (%)
Myocardial Infarction (MI)	66 (29.2)
Unstable Angina (UA)	138 (61.1)
Other Acute Ischemic Heart Diseases	22 (9.7)
Site of Myocardial Infarction	
Transmural Inferior	13 (19.7)
Transmural Anterior	20 (30.3)
Not Specified	33 (50.0)

Table 3 shows the prevalence of existing comorbidities among patients with coronary events. Pre-existing cardiovascular diseases such as chronic ischemic heart diseases, atherosclerotic diseases and stroke were reported in 107 (47.3%) patients. Hypertension was diagnosed in 97 (42.9%) and diabetes in 82 (36.3%) patients.

Table 3: Distribution of Coronary Diseases in Patients According to Co-morbidities

Type of Coronary Event	Myocardial Infarction	Unstable Angina	Other Acute Ischemic Heart Diseases	Total (%)
Diabetes Mellitus	14 (17.1)	58 (70.7)	10 (12.2)	82 (36.3)
Hypertension	15 (15.5)	73 (75.3)	9 (9.3)	97 (42.9)
Other cardiovascular and stroke	17 (15.9)	80 (74.8)	10 (9.3)	107 (47.3)
Dyslipidemia	6 (19.4)	21 (67.7)	4 (12.9)	31 (13.7)
Renal and others	10 (22.2)	29 (64.4)	6 (13.3)	45 (19.9)

Table 4 shows that the average duration of hospital stay was 5.8 (SD ± 2.3) days. Thirty-one (47%, 31/66) patients who had myocardial infarction stayed more than 6 days in the hospital compared to 32 (23.2%, 32/138) patients with unstable angina and 5 (22.7%, 5/22) with other coronary events.

Table 4: Duration of Stay According to Type of Coronary Event

Duration of Stay in Hospital	Myocardial* Infarction	Unstable Angina	Others
≤ 3 days	6 (9.4)	32 (23.2)	7 (31.8)
4-6 days	27 (42.2)	74 (53.6)	10 (45.5)
≥ 6 days	31 (48.4)	32 (23.2)	5 (22.7)

*Duration of stay for 2 cases of myocardial infarction were missing

DISCUSSION

In Bahrain, cardiovascular death accounts for about 19.5% annually. In Bahrain, no cardiovascular registry system has been established similar to cancer[10]. The lack of such system makes it difficult to plan properly for prevention, treatment and research.

Lack of adequate data on cardiovascular diseases was a concern addressed quite often. The main challenge for developing countries was incomplete and inaccurate reported data[11-13].

The current data on cardiovascular morbidity and mortality depends mainly on hospital discharge and admission. The information derived from this source lack standardization in most cases because it is completed by junior medical staff. The reliability and validity of these data would be questionable source of information to establish baseline, tracking trends and planning for future health services.

It is widely documented that hypertension and diabetes mellitus are correlated significantly with the risk of coronary events and mortality[7,8,11]. The combined diabetes and cardiovascular disease is a high risk for future cardiac event[7,8].

In this study, coronary artery disease patients had significant comorbidities, hypertension (42.9%), diabetes mellitus (36.3%) and other cardiovascular diseases (47.3%). Dyslipidemia was reported in 13.7% of patients, this leaves a room for questioning the reliability of the diagnosis, especially with absence of consistent laboratory results. Similarly, other studies had considered lipid abnormalities as one of the main pre-determinants factors for coronary events[14].

Our data shows that 50% of myocardial infarction cases had unspecified site of infarction. While several studies show that the site of infarction is an important predictor to determine the prognosis and follow-up of myocardial infarction[15]. This reflects again a defect in data quality, reliability and completeness.

The observed mean duration of stay for coronary event in this study (5.8 ± 2.3 days) was consistent with other studies[16]. Nevertheless, it is observed that myocardial infarction patients had a longer duration in the hospital; this is not surprising because myocardial infarction cases require longer duration. It implies that the economic burden of myocardial Infarction is significant on the health services in Bahrain.

CONCLUSION

Cardiovascular diseases are the leading causes of morbidity and mortality in Bahrain. This study revealed that data about the incidence and prevalence of cardiovascular disease in general and coronary events in particular are insufficient in Bahrain.

The study found that over two third of the cases diagnosed with coronary ischemia had unstable angina, while nearly one third (29.2%) had myocardial infarction.

Pre-existing conditions, such as, chronic ischemic heart diseases, hypertension and diabetes, were reported in almost half of the patients suffered from coronary events (47.3%, 43% are and 36%) respectively. The average duration of hospital stay for cases diagnosed with coronary events was 5.8 (SD ± 2.3) days, almost half of the myocardial infarction patients stayed more than 6 days in the hospital.

Recommendations

There is an urgent need to maintain timely and comprehensive information on cardiovascular disease burden to understand disease patterns, presentations, short and long-term outcomes.

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