THE CREATE REGISTRY

A Prospective Study of Practice Pattern and Outcomes in Acute Myocardial Infarction and Unstable Angina In Various Regions of Nepal

Dr.R. K. Shah, M.D. (Cardiology)
Dept. of Cardiology, NAMS, Bir Hospital

Introduction

Ischaemic heart disease [IHD] is one of the leading causes of mortality and morbidity in the world. By the end of the 20th century 60% of the global burden of IHD already occurred in the developing countries and 82% of the anticipated increase in mortality and 89% of morbidity will be seen in these regions[1]. The burden on IHD in Nepal[26] and in India is huge [2-5] and mortality in AMI is shown to be higher in Indians for various reasons[6]. The last 2 decades have seen numerous randomized controlled trials [7-9] establishing the benefit of treatment options like aspirin, thrombolysis, beta blockade and angiotensin converting enzyme inhibitors, and interventional options like PTCA and CABG surgery. With this, the treatments of Acute Myocardial Infarction [AMI] and Unstable Angina [UA] have changed and the outcomes of these conditions have improved. Clinical trials and guidelines like the American Heart Association /American College of Cardiologists [10] have greatly influenced practice patterns inAMI[11].

Most studies done in America and Europe show under-utilization of appropriate treatments for AMI and UA.

Numerous studies have been done in the recent past to document and analyze the utilization of treatment options in AMI [12-18]. These studies have shown variations in treatment based on type of hospital [19], age and gender of patients[20], type of treating physicians [21,22] and geography [23,24].

A study[19]done in the late 1990's documented practice patterns in AMI in India in 14 hospitals in 3 southern states. This study showed variations in the utilization of treatment options based on the type of hospital and recommended the need to be more appropriate in treatment practices. Another study compared the practice patterns between hospitals in India and Canada [25]. This study showed that the presenting pattern and risk factors were different, but the patterns of practice appear to be similar.

With a large burden of IHD in Nepal, a study of practice patterns and analysis of its appropriateness will therefore, now, be timely and important. The data generated from such a study will throw invaluable light on how AMI and UA are being treated in different types of hospitals in various regions of Nepal. This data would create a National Picture of practice patterns and outcomes in AMI and UA, thereby helping improve patient care and outcome in these conditions.

Aims and objectives

1. To study the therapeutic modalities employed in patients of AMI or UA [both pharmacological and interventional].
2. To document and analyze the events and outcomes in hospital and within 30 days.
3. To describe variations in therapeutic practices and outcomes based on patient characteristics [age, gender, socio-economic status and risk factors], nature of hospital [secondary vs. tertiary, teaching vs. non-teaching etc.] and type of treating physicians [interventional vs. non-interventional, cardiologists vs. general physicians].

Material and Methods

Study Size

122 patients at NAMS, Bir Hospital and 22 Patients at Medicare National Hospital and Research Center over nine months (July 2003 AD to March 2004 AD)

Study Design

This was a multi centric prospective observational study with 2 centers in Kathmandu valley. Data was collected by means of a simple Case Report Form [CRF]. In CRF1 data of the patient's hospital stay and discharge and in CRF2 the 30-days follow up data was collected and verbal consent was taken from patients before including in the study.

Eligibility

Cases were recruited prospectively and consecutively. All patients admitted to the CCU/ICU with suspected acute myocardial infarction or unstable angina were screened. Those who fulfilled the inclusion criteria were considered for the study and the CRF filled up. Those who were excluded only entered in the screening log. The second form [CRF 2] was filled when the patient comes for the 30-day follow up. Data was collected within a window period of 10 days after the 30-day period.

Inclusion Criteria

1. Suspected acute myocardial infarction or unstable angina with definite EGG changes.
2. Signs and symptoms of acute myocardial infarction or unstable angina but no definite ECG changes. However the patient has evidence of anyone or more of the following: Ischemic Heart Disease, Prior MI, PTGA, GABG, Positive TMT or Angiographic evidence of Coronary Artery Disease.

Exclusion Criteria

1. Patients partially treated elsewhere for this episode and referred only for additional management or interventional therapy without any reliable proof of treatment taken.
2. Patients with serious unrelated disease [e.g. advanced malignancy], which may limit life expectancy to less than the 30-day, follow up period.
3. Anticipated problems with the 30 day follow up [e.g. patients from another place who will not come back for any follow up visits]

Result

SEX DISTRIBUTION

The study population=142
Male=92
Female= 50
Male: Female=1.84:1

AGE DISTRIBUTION :

Age Range	Male	28-83 years
	Female	53-85 years
Mean Age	Male	56.20 years
	Female	65.0 Years

Table No. 1
EDUCATION

SN	EDUCATION	NUMBER	PERCENTAGE
1	NONE	45	31.69
2	<HIGH SCHOOL	63	44.37
3	HIGH SCHOOL	7	4.93
4	B.A	17	11.97
5	PH.D	10	7.04
TOTAL		**142**	**100**

Table No. 2
OCCUPATION

SN	OCCUPATION	NUMBER	PERCENGAGE
1	PROFFETIONAL	19	13.38
2	SKILLED LABOUR	9	6.34
3	UNSKILLED LABOUR	20	14.08
4	HOUSE WIFE	43	30.28
5	FARMER	17	11.97
6	POLICE	3	2.11
7	LARGE BUSSINESS	7	4.94
8	SMALL BUSSINESS	12	8.45
9	CLERICAL	12	8.45
10	OTHERS	0	0
	TOTAL	**142**	**100**

Table No. 3
INCOME (IN Nepalese Rupees)

SN	INCOME	NUMBER	PERCENTAGE
1	<3000	44	31.33
2	3000-5000	38	26.51
3	5000-10000	29	20.48
4	10000-15000	14	9.64
5	15000-20000	12	8.43
6	>20000	5	3.61
TOTAL		**142**	**100**

Table No. 4
SOCIAL CLASS

S. N.	CLASS	NUMBER	PERCENTAGE
1	RICH	7	4.93
2	UPPER MIDDLE	32	22.54
3	LOWER MIDDLE	79	55.63
4	POOR	24	16.90
TOTAL		**142**	**100**

Table No. 5
TYPE OF IHD

UNSTABLE ANGINA	62	(43.66)
MYOCARDIAL INFARCTION	80	(56.34)
TOTAL	**142**	**100%**

Table No. 6
TYPE OF MI

SN	TYPE	NUMBER	PERCENTAGE
1	INFERIOR	24	16.90
2	ANTERIOR	41	28.88
3	RV	0	0
4	LBBB	1	0.70
5	NON Q	10	7.04
6	IN+RV	2	1.41
7	IN+ANT	2	1.41
TOTAL		**80**	**56.34**

Table No. 7
KILLIP CLASS

CLASS	NUMBER	PERCENTAGE
1	67	47.18
2	49	34.51
3	14	9.86
4	12	8.45
TOTAL	**142**	**100**

Table No. 8
PAST HISTORY

SN	HISTORY	NUMBER	PERCENTAGE
1	MI	14	9.86
2	DM	39	27.46
3	HTN	62	43.66
4	CVA	2	1.41
5	HF	2	1.41
TOTAL		**119**	**83.8**

Table No. 9
SMOKING

SN	TYPE	NUMBER	PERCENTAGE
1	SMOKER	58	40.85
2	PAST SMOKER	48	33.80
3	NON SMOKER	36	25.35
TOTAL		**142**	**100**

Table No. 10
THROMBOLYTIC PATTERN

YES	32	(22.54%)
NO	110	(77.46%)
TOTAL	**142**	**(100.00%)**

Table No. 11

SN	DRUGS	BEFORE HOSPITAL ADMISSION	DURING HOSPITAL ADMISSION	AT DISCHARGE
1.	ANTI PLATELETS	17(11.97%)	140(98.6%)	132(92.96%)
2.	NITRATE	14(9.86%)	140(98.59%)	115(80.99%)
3.	B-BLOCKER	20(14.08%)	113(79.58%)	105(73.94%)
4.	ANTI COAGULANT	0	109(76.76%)	2(1.41%)
5.	ACE INHIBITOR	19(13.38%)	118(83.10%)	117(82.39%)
6.	AT1 BLOCKER	5(3.52%)	3(2.11%)	2(1.41%)
7.	CC BLOCKER	15(10.56%)	9(6.34%)	10(7.04%)
8.	STATINS	7(4.93%)	123(86.62%)	110(77.46%)
9.	ANTI ARRHYTHMIC	0	9(6.34%)	5(3.50%)
10.	DIURETICS	10(7.04%)	25(17.6%)	7(4.93%)

Table No. 12
EVENT IN THE HOSPITAL

SN	EVENT	NUMBER	PERCENTAGE
1	REINFARCTION	4	2.82
2	DEATH	10	7.04
3	STROKE	2	1.41
4	CARDIAC ARREST	2	1.41
5	CARDIOGENIC SHOCK	0	0
6	PUL EMBOLISM	0	0
7	BLEEDING	0	0
TOTAL		**18**	**12.68**

Table No. 13
EVENT AFTER DISCHARGE

SN	EVENT	NUMBER	PERCENTAGE
1	DEATH	5	3.52
2	CARDIAC ARREST	2	1.41
TOTAL		**7**	**4.93**

Discussion

Like in many other articles[26] in this study also male predominance was seen. Male patients were 1.8 times more than female. In male mean age of IHD event was56 years while in female was 65 years. Less educated who was either not completed high school or illiterate were affected more (76%). Female were mostly housewife while males were of different occupation. 72% of patients were poor and lower middle class. Monthly family income was less than five thousand in 57% of patients. MI was commoner than UA. Anterior wall MI was almost two times more than inferior wall. Most common risk factor was smoking (74%), hypertension was present in 43%and diabetes mellitus in 27%. Thrombolysis was done in 22% only while MI was present in 56% of patients. Only 11%of patients were taking Aspirin before hospital admission. During hospital stay98.6% of patients received Aspirin. Before admission drugs taken by patients were Nitrate in9.64%, ACEI in 13.38%,B- Blockers in 14.08%,CC Blockers in 10.56% and Statins in 4.93% only. In hospital Nitrate was given 98.61%, ACEI in 83.10%,B-Blocker in 79.58%,CC-Blocker in 6.34% and Statin in 86.62%.6.34% of patients received anti arrhythmic therapy during hospital stay In hospital mortality was 7% and death occurred within 30 days was 3.5%.

Conclusion

1. Mean age of IHD event was 56.20 years in male while 65.08 years in female.
2. IHD events were nearly two times higher in male than in female.
3. 2/3 of the IHD patients were less educated
4. Most of the patients were lower middle class or poor (72.53 %)
5. Myocardial infarction (MI) was commoner than unstable angina while anterior wall MI was two times more than inferior wall
6. 44% of the patients were hypertensive and diabetes mellitus seen in 28 %
8. More than 74 % of the patients were either smoker or ex smoker. Nonsmoker were only 25%
9. Thrombolysis was done in 22% only
10. Under utilization of drugs like Aspirin, B-blocker, statins and ACE inhibitor was seen in IHD patients.
11. In hospital mortality was 7% while death occurred after discharge was 3.5%

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