Review Article

Acute Coronary Syndrome Management in Sudanese public hospitals, Khartoum State, Sudan, 2017

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Statement of the problem:

Coronary artery disease is the leading cause of death Worldwide ,Acute coronary syndromes(ACS),which include Unstable angina and acute myocardial infarction, the most feared complications of it[1].ACS managed as an emergency and also need long term medications according to international guidelines. The purpose of study to see the management plan weather it is medical based or need further interventions(surgery) or both, the outcome of each plane followed and the presentation of ACS in Sudanese patients. Also the study purposed to see the association between ACS and chronic disease from the history of patients(DM, HTN,CKD, and asthma.) Methodology: cross sectional hospital based conducted at Ashaab teaching hospital Khartoum-sudan, data collected from patient (personal data) directly and from medical records(medical history) with 160 sample size .Findings: Almost the study has equal number of males and females with near to fifty percent (51-70) years age distribution, and varying educational level. The presenting clinical diagnosis of ACS as follow: STEMI was 54.3%, NSTEMI 21.3% and US 23.1% and the rest was SA. Management plan mainly medical(89%) and only about 10% need further interventions, 85% of patient treated according to national guidelines and the outcome of management as follow: more than 50% of patient get better and about 28% needed further interventions as they show features of re infraction and stroke small portions showed no change. That there is strong correlation between STEMI and DM, HTN , CKD and this match what was said in literature, This in contrast to what seen in our study, which showed no association between MD and NSTEMI ,And there is also a correlation between NSTEMI and HTN also match what said in literature It was founded that there is association between STEMI and asthma but this result did not mentioned in literature. Conclusion and significance: there is highly dependence on medical treatment in dealing with ACS and there is excellent guidelines adherence and with good outcome in managing ACS in Sudanese puplic hospitals.There is association between ACS and Asthma and this not said in literature so more researches to see what is the relation?.

Introduction:

Coronary artery disease(CAD), in which atherosclerotic plaque builds up inside the coronary arteries and restricts the flow of blood (and therefore the delivery of oxygen) to the heart, can lead to acute coronary syndrome (ACS), which describes any condition characterized by signs and symptoms of sudden myocardial ischemia—a sudden reduction in blood flow to the heart.

The clinical signs and symptoms of myocardial ischemia: unstable angina, non–ST-segment elevation myocardial infarction, and ST-segment elevation myocardial infarction. The signs and symptoms of ACS constitute a continuum of intensity from unstable angina to non–ST segment elevation MI (NSTEMI) to ST-segment elevation MI (STEMI). Unstable angina and NSTEMI normally result from a partially or intermittently occluded coronary artery, whereas STEMI results from a fully occluded coronary artery.[2]

Risk factors include: Non modifiable include: age, sex, family history, and ethnicity or race. Modifiable risk factors include: elevated levels of serum cholesterol, low-density lipoprotein cholesterol, and triglycerides; lower levels of high-density lipoprotein cholesterol; and the presence of type 2 diabetes, cigarette smoking, obesity, a sedentary lifestyle, hypertension, and stress.

Signs and Symptoms:

Chest pain,In unstable angina, chest pain normally occurs either at rest or with exertion and results in limited activity. Chest pain

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associated with NSTEMI is normally longer in duration and more severe than chest pain associated with UA . In both conditions, the frequency and intensity of pain can increase if not resolved with rest, nitroglycerin, or both and may last longer than 15 minutes. Pain may occur with or without radiation to the arm, neck, back, or epigastric area. shortness of breath, diaphoresis, nausea, and lightheadedness.

Changes in vital signs, such as tachycardia, tachypnea, hypertension, or hypotension, and decreased oxygen saturation cardiac rhythm abnormalities may also be present[3]

Many women present with atypical symptoms, resulting in delayed diagnosis and treatment such as shortness of breath, fatigue, lethargy, indigestion,[4]

Management plan : based on stabilizing patient initially , Relieving ischemic pain and providing antithrombotic therapy to reduce myocardial damage and prevent further ischemia .morphine, oxygen , aspirin , nitroglycerine sublingual or IV.

NSTEMI , pt receive aspirin ,clopidogrel , un fractionated heparin or low molecular weight heparin , beta blockers and Platelet GP 2b/3a complex blockers.[5]

STEMI , Pt given aspirin , clopidogrel , beta blockers , statines , and ACE inhibitors.[6]

Problem statement:

Coronary artery disease is the leading cause of death Worldwide ,Acute coronary syndromes, which include Un stable angina and acute myocardial infarction, are the most feared complication of coronary artery disease[1]

International guidelines must be followed in management of any medical problem and in a problem like ACS management should be conducted as soon as possible to minimize the hazardous outcome of the defective management.

Doctors and all staff should be in contact with these guidelines and conduct it in safe effective way.

Justification:

This study can measure the extent to which medical staff in cardiology department adhere to international guidelines for management of ACS. This will open a window between medical authorities in different level of ministry of health, Sudan and hospital head and manager to tightly observe their doctor in using the stander guides, even in areas other than this covered in our study.

And because of a few even not any studies in our area done in this aspect of practice we hope that this study can be a portal to correct any defect or problem in management plane strategy of ACS.

Methodology

Study design:
This was Descriptive cross-sectional, hospital based study.

Study setting:
Ashaab teaching hospital is one of biggest hospital situated in middle Khartoum, in which more than 300 patient are received complaining of cardiac problems daily. Ibrahim Maalik teaching hospital, one of the big hospitals in Khartoum , situated in Al Sahafa , Khartoum ,Sudan.

Study populations:
Patients diagnosed with ACS.

Inclusion criteria:
Patients diagnosed with ACS.

Exclusion criteria:
Patients not diagnosed with ACS

Sample size:
Sample size(n) calculated by the formula
N=z2*p*q/d2. n- 1.96, =95% CI, p= prevalence, q=1-p d= desired marginal error= (0.05). n=160.

Sampling technique:
Simple Random Sampling.

Variables:
Age, sex, occupation, presented complain, treatment plane, outcome of plan, ACS presentation clinically

Data collection:
Data was collect using a researcher administered questionnaire with standardized questions both open and closed ended ones from medical records.

Data analysis:
The Data analyzed using statistical package for social sciences "SPSS" v23. Descriptive statistics also were used to compute frequencies for numerical and ordinal variables. Association with chi-square cross-tabulation with significance value of 0.05.

Ethical considerations:
Ethical Approval was obtained from ERB , , Community Medicine department in faculty of Medicine, University of Khartoum. Also from administers of hospitals, Ashaab and Ibrahim maalik.

Results:

| a	g	e	g	r	o	u	p
		Frequency	Percent	Valid Percent	Cumulative Percent		
Valid 31-50	4	1	25.6	25.6	25.6		
51-70	7	9	49.4	49.4	75.0		
71-90	4	0	25.0	25.0	100.0		
Total	1 6	0	100.0	100.0			

Distribuation of age groups of patients diagnosed with ACS in ashaab and Ibrahim maalik teaching hospitals.(n=160).
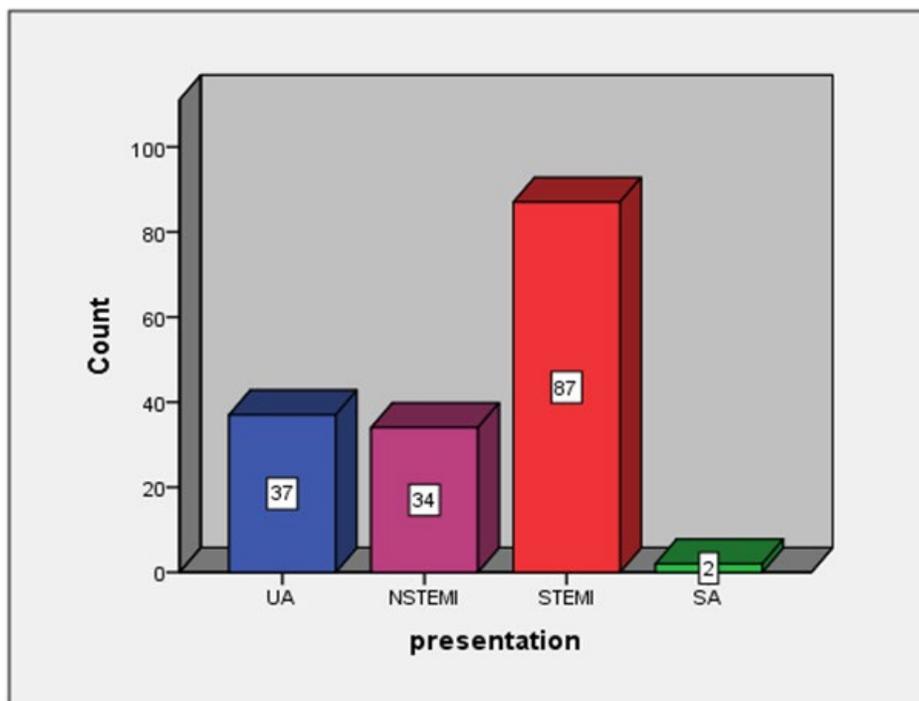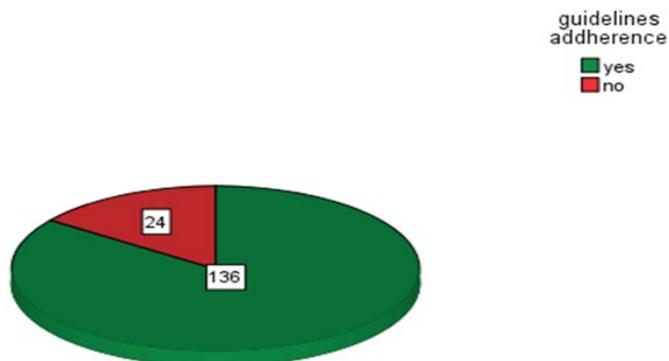

Distribution of clinical presentation of ACS among patient diagnosed with it in Ashaab and Ibrahim Maalik teaching hospitals ,(n=160)
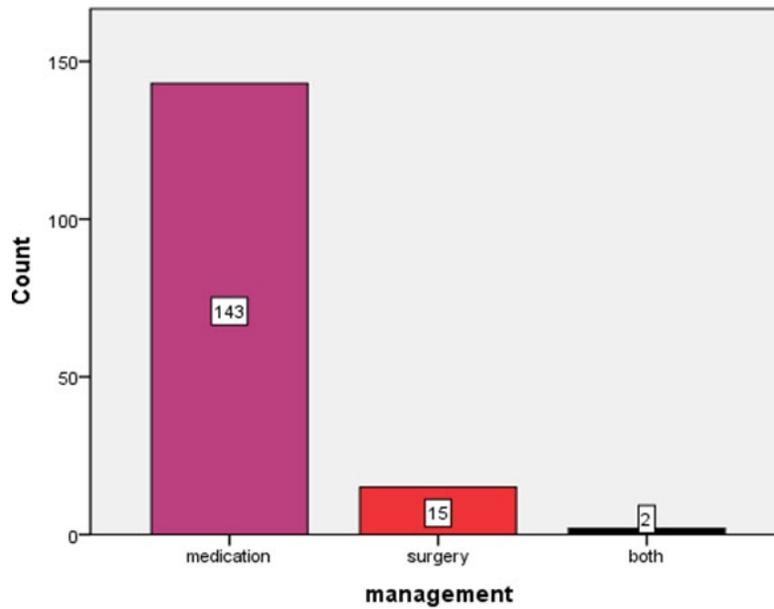
Distribution of management plane for patient diagnosed with ACS in Ashaab and Ibrahim Maalik teaching hospitals (n=160)
4.10. Figure 8: Distribution of the outcome of management of patients with ACS in Ashaab and Ibrahim Maalik teaching hospitals (n=160)
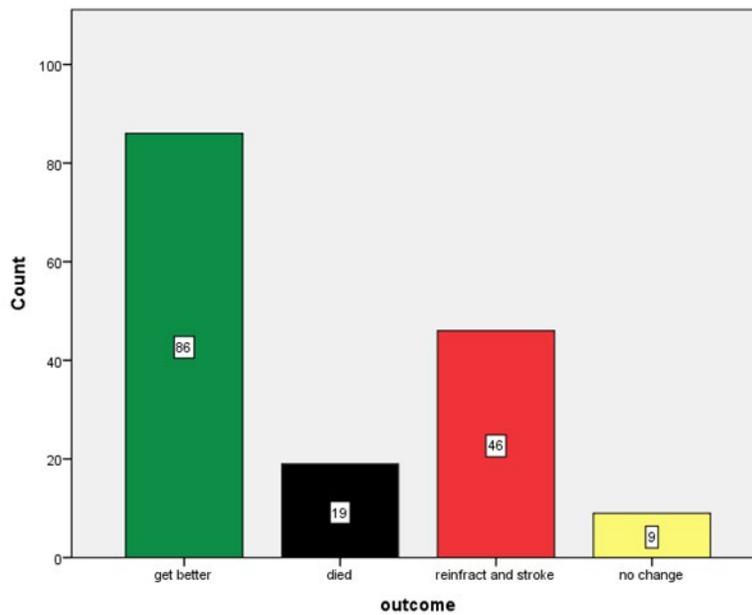
Distribution of the outcome of management of patients with ACS in Ashaab and Ibrahim Maalik teaching hospitals (n=160

Distribution of guidelines adherence (if management according to guidelines or not) in Ashaab and Ibrahim Maalik teaching hospitals for patient diagnosed with ACS.(n=160)

Chi-Square Tests

	Value	D	f	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.038[a]	2	.030
Likelihood Ratio	7.132	2	.028
Linear-by-Linear Association	3.745	1	.053
N of Valid Cases	160		

Association between HTN and NSTEMI (n=160)

Chi-Square Tests

	Value	D	f	Asymptotic Significance (2-sided)
Pearson Chi-Square	10.583[a]	2	.005
Likelihood Ratio	10.784	2	.005
Linear-by-Linear Association	5.647	1	.017
N of Valid Cases	159		

Association between DM and STEMI (n=160)

Chi-Square Tests

	Value	Df		Asymptotic Significance (2-sided)
Pearson Chi-Square	10.075ª	2		.006
Likelihood Ratio	10.227	2		.006
Linear-by-Linear Association	8.263	1		.004
N of Valid Cases	159			

Association between HTN and STEMI (n=160)

Chi-Square Tests

	Value	Df		Asymptotic Significance (2-sided)
Pearson Chi-Square	8.216ª		2	.016
Likelihood Ratio	8.308		2	.016
Linear-by-Linear Association	4.137		1	.042
N of Valid Cases	159			

Association between CKD and STEMI (n=160)

Chi-Square Tests

	Value	Df		Asymptotic Significance (2-sided)
Pearson Chi-Square	7.437ª		2	.024
Likelihood Ratio	7.589		2	.022
Linear-by-Linear Association	6.717		1	.010
N of Valid Cases	159			

Association between Asthma and STEMI (n=160)

Discussion:

This was descriptive cross sectional hospital based study , and considered to be. It was conducted to study management plan for ACS in Sudanese public hospitals Ashaab teaching hospital, 160 of participants included in the study and the data collected from medical records.

Almost half of populations 41.25% was females and 58.75% males. Of those, age group distribution as follow: 49.4% (51-70), 25% (31-50) and (71-90). 29.3% educated till school and 23.7 not educated.41.8% from middle of Sudan constitute the majority and 27.5 % from western Sudan and the rest from other site over country. Regarding work, 50% were working , 17.5% retried and for females most were housewives. Regarding past history of previous attacks, 60.63% had none, 27.75% had one attack , and 15.63% had more than one attack.

The presented complain clinically diagnosed as STEMI was 54.3%, NSTEMI 21.3% and US 23.1% and the rest was SA. This is in contrast to other studies showed that NSTE-ACS is more frequent than STE-ACS (7). The treatment plan mainly medical 89.3% with no need for surgical intervention and 10.6% treated with both medical and surgical methods.

The outcome of management plane followed was that 53.7% get better immediately after course of the initial management, 11.8% died before complete the initial management and 28.7% re infracted or stroked so need an alternative as well as those who got no change who were 5.6% and also needed to change treatment.

Those who managed according to guidelines was 85% and 15% of them get treated in a way that not match guidelines. This result is good in comparison with other countries Worldwide , in Vietnam it was founded to be less (8). This mean that doctor adhere to guidelines tightly and need less follow up and they are ready to apply it at any time anywhere.

Regarding the association between the presentation of ACS and pt co morbid, it was found that there is strong correlation between STEMI and DM, HTN , CKD and this match what was said in literature(9). Previous studies showed that Approximately 20 –30% of patients with NSTE-ACS have known diabetes, and at least as many have undiagnosed diabetes or impaired glucose tolerance.(10). This in contrast to what seen in our study, which showed no association between MD and NSTEMI ,And there is also a correlation between NSTEMI and HTN also match what said in literature(11).

It was founded that there is association between STEMI and asthma but this result not yet mentioned in literature.

Conclusion:

There is 85% adherence to guidelines in treating ACS in Sudanese public hospitals.

There is correlation between STEMI and DM , HTN and CKD and association between NSTEMI and HTN.

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