AIM OF THE WORK

To study the outcome of cardiopulmonary resuscitation of adults in ER in the Alexandria Main University Hospital.

PATIENTS

The study was carried out on 100 adult male and female patients, who were admitted to the Emergency Department in Alexandria Main University Hospital with the diagnosis of cardiac arrest at their presentation or during hospital admission.

Inclusion criteria:

1. Adult male and female patients with cardiac arrest who received CPR

Exclusion criteria:

1. Patients aged less than 16 years.
2. Patients with cardiac arrest and didn't receive CPR.

METHODS

All patients included in the study were subjected on admission to the followings:

1. Confirming the diagnosis of cardiac arrest based on initial examination in ER using the guidelines criteria.
2. All patients were subjected to CPR according to recent European Resuscitation Council (ERC), [98] guidelines of CPR.
3. Data recording during and after CPR were include:
    a) Patient name, age, sex and brief history.
    b) Time of starting CPR and its duration.
    c) First presenting rhythm and the rhythm after return of spontaneous circulation (ROSC).
    d) Time of the first delivered shock and number of shocks.
    e) All drugs that the patient had received.
    f) Outcome of CPR (survivor or not) .

4. Patients who survived, the following data were collected:
    a) The initial event before the cardiac arrest.
    b) Chronic diseases such(DM, Hypertention, Coronary artery disease) and/ or current medications.
   c) Risk factors for coronary artery disease (e.g DM, hypertension, smoking, obesity, etc).

RESULTS

Results of the present study are shown in the following tables and figures:

Table (II): Demographic characteristics of the studied patients (n=100).

Age (years)	Range	17.0 - 87.0
	Mean ± SD	48.08 ± 18.2
Gender	Male	56
	Female	44

This table shows that the studied patients had a mean age of 48.08 ± 18.2 years. They included 56 males and 44 females.
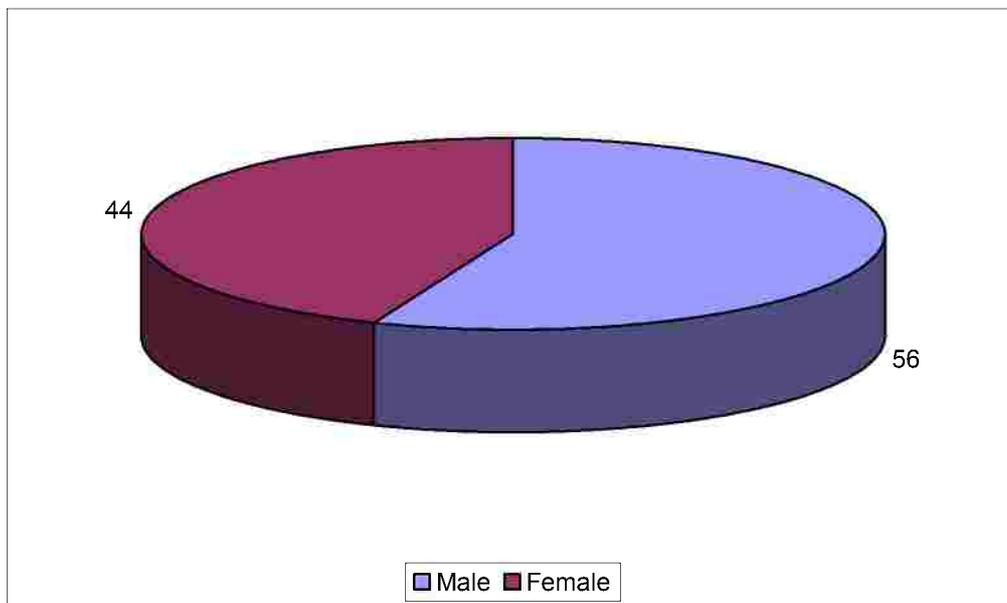

Figure (4) Gender distribution in the studied patients; include 56 males and 44 females.

Table (III): Causes of admission in the studied patients (n=100).

	No	%
Cardiac	34	34.0
Medical (non-cardiac)	45	45.0
Surgical (non-cardiac)	12	12.0
Trauma	9	9.0

This table shows the causes of admission in the studied patients. Cardiac causes were reported in 34 patients while other medical and surgical causes were reported in 45 and 12 patients respectively. Trauma was the cause of admission in 9 patients.
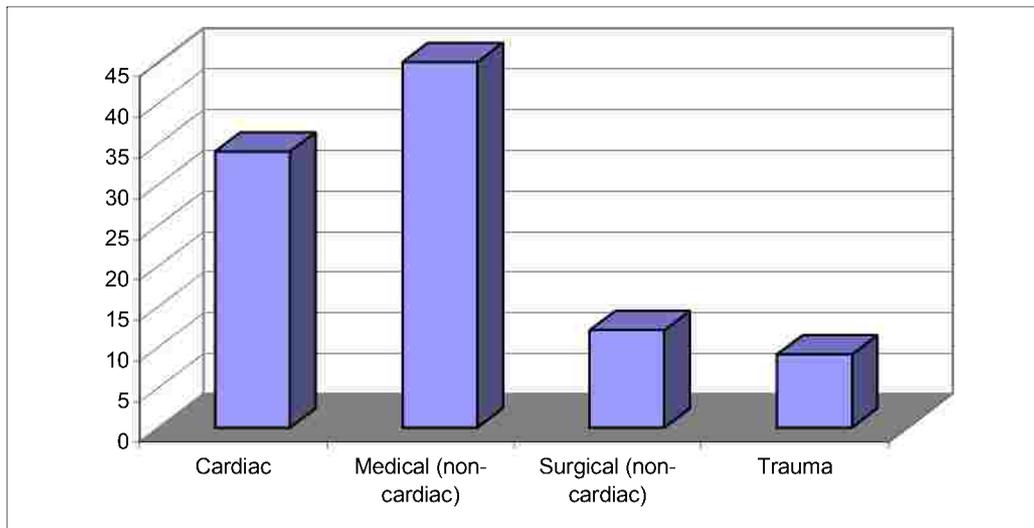

Figure (5): Shows the causes of admission in the studied patients. Cardiac causes were reported in 34 patients while other medical and surgical causes were reported in 45 and 12 patients respectively. Trauma was the cause of admission in 9 patients.

Table (IV): Preexisting conditions in the studied patients (n=100).

	No	%
Hypertension	29	29.0
Ischemic heart disease	23	23.0
Diabetes	15	15.0
End-stage diseases	8	8.0
Malignancy	10	10.0
COPD	8	8.0
Two or more conditions	10	10.0
One or less conditions	90	90.0

Table IV and Figure (6) show that hypertension was the most common preexisting in the studied patients followed by ischemic heart disease, diabetes and malignancy. 10 patients had two or more conditions while the remainder 90 patients had one or less conditions.
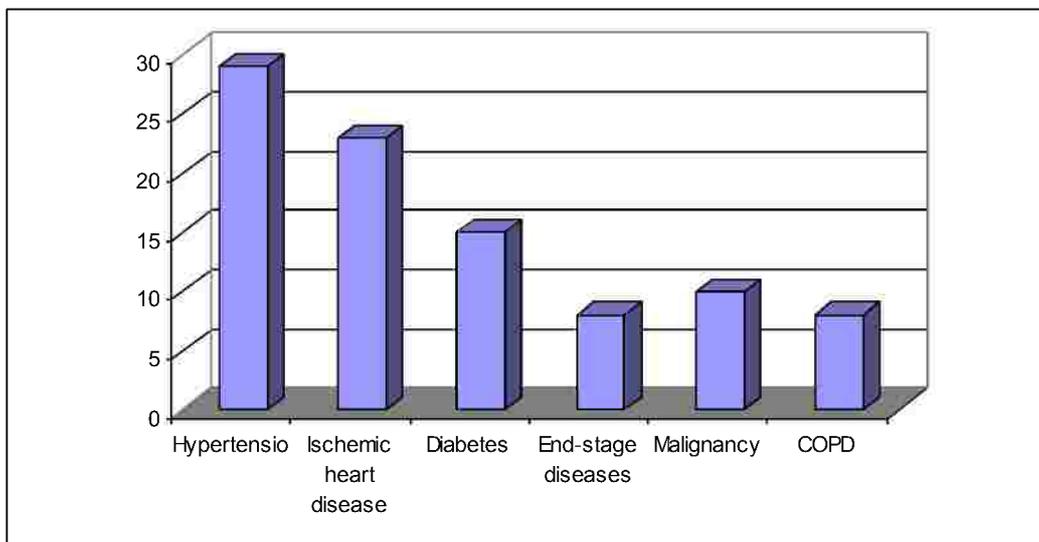

Figure (6): Preexisting conditions in the studied patients.

Table (V): Initial rhythm in the studied patients (n=100).

	No	%
Asystole	60	60.0
PEA	22	22.0
VF	9	9.0
VT	6	6.0
Sinus bradycardia	2	2.0
Trosade de pointes	1	1.0
Total	100	100

Table V and Figure (7) show the initial rhythm of the studied patients. Asystole was the most common presenting rhythm (60.0 %) followed by PEA (22.0 %) and VF (9.0 %) while VT, sinus bradycardia and trosade de pointes were found in 6, 2 and 1 patients respectively.
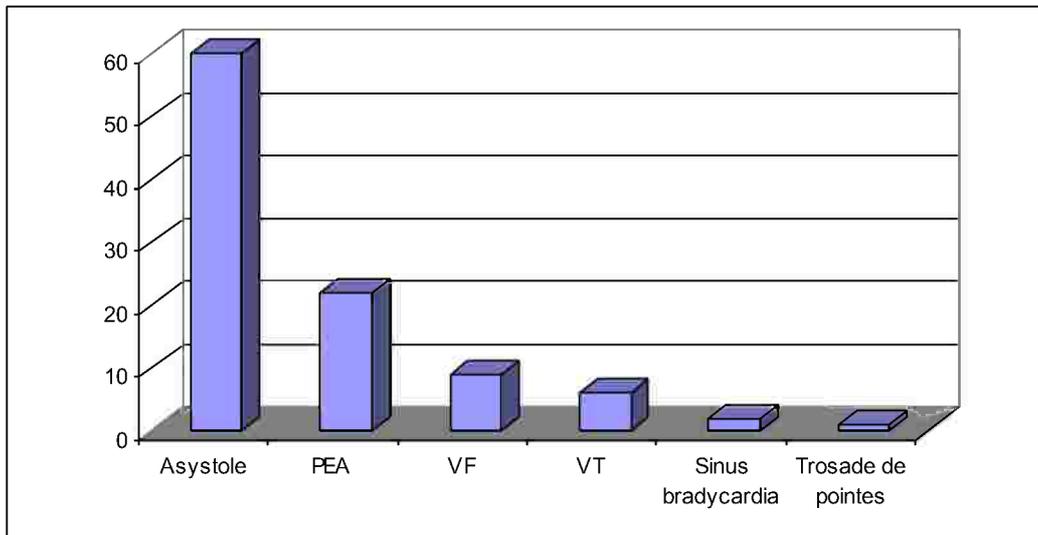
Figure (7) The initial rhythm in the studied patients.

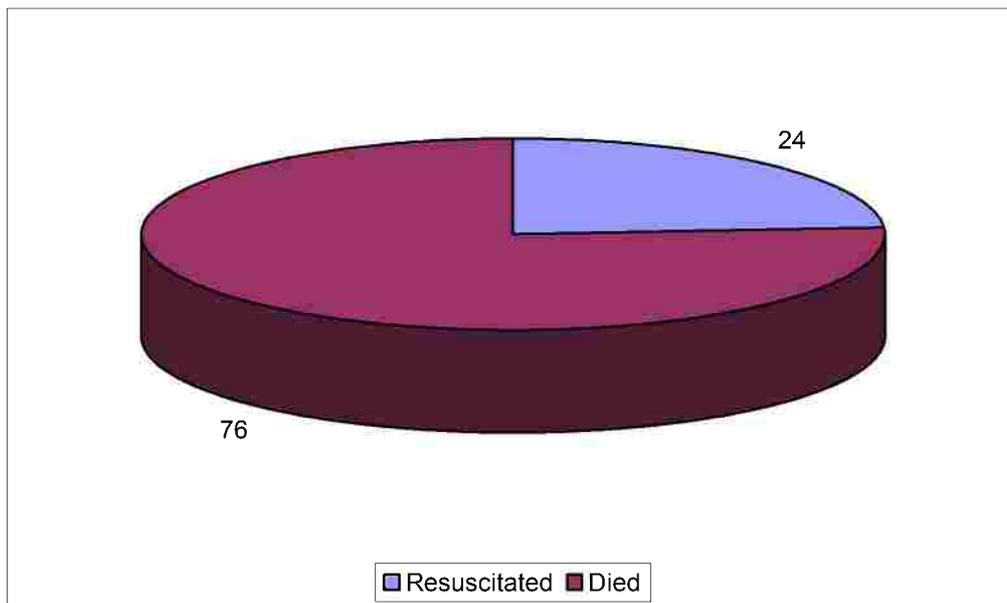**Table (VI):** CPR characteristics in the studied patients (n=100).

	Range	Mean ± SD
Starting Time	0.0 - 10.0 (min)	0.25 ± 1.24 min
Duration of CPR	5.0 - 90.0 (min)	33.3 ± 18.5 min
Duration to 1ˢᵗ shock	1.0 - 30.0 (min)	9.4 ± 8.4 min
Number of shocks	1.0 – 6.0	2.7 ± 1.45

This table shows CPR characteristics in the studied patients. The time to starts CPR was 0.25 ± 1.24 minutes. The mean duration of CPR was 33.3 ± 18.5 minutes. The mean number of shocks was 2.7 ± 1.45 while duration of the 1st shock was 9.4 ± 8.4 minutes.

Table (VII): CPR outcome in the studied patients (n=100).

	No	%
Resuscitated	24	24.0 %
Died	76	76.0 %

This table shows that only 24 patients who had CPR were resuscitated while the remainder 76 died.

Figure (8): CPR outcome in the studied patients, only 24 patients who had CPR were resuscitated while the remainder 76 died.

Table (VIII): Comparison between survivors and non-survivors regarding the demographic characteristics.

		Non-survivors N=76	Survivors n=24	Student t test	
				t	p
Age		51.3 ± 16.7	47.0 ± 18.6		
				Chi-square test	
				X2	P
Gender	Male	43	13	0.043	0.84
	Female	33	11		

This table shows no statistically significant differences between survivors and non-survivors regarding the demographic characteristics

Table (IX): Comparison between survivors and non-survivors regarding the cause of admission.

	Survivors N=24	Non-survivors n=76	Chi-square test	
			X2	P
Cardiac	9	25	0.99	0.8
Medical (non-cardiac)	14	31		
Surgical (non-cardiac)	5	7		
Trauma	3	6		

This table shows no significant differences between survivors and non-survivors regarding the causes of admission.

Table (X): Comparison between survivors and non-survivors regarding the preexisting condition.

	Survivors N=24	Non-survivors n=76	Chi-square test	
			X2	P
More than two	-	10	3.5	0.061
One or less	24	66		

This table shows higher frequency of cases with more that two preexisting conditions in non-survivors when compared with survivors. However, the difference was statistically marginal.

Table (XI): Comparison between survivors and non-survivors regarding the initial rhythm.

	Survivors N=24	Non-survivors n=76	Chi-square test	
			X2	P
Asystole	**10**	**50**		
PEA	**4**	**18**		
VF	**5**	**4**	**17.9**	**0.003***
VT	**4**	**2**		
Sinus bradycardia	**0**	**2**		
Trosade de pointes	**1**	**-**		

This table shows higher frequency VT/VF in survivors when compared with non-survivors.

Table (XII): Comparison between survivors and non-survivors regarding the CPR parameters.

	Survivors N=24	Non-survivors n=76	Student t test	
			t	p
Starting Time	0.0 ± 0.0	0.32 ± 1.41	-2.02	0.046*
Duration of CPR	13.3 ± 7.75	39.67 ± 16.27	-10.76	0.0001*
Duration to 1ˢᵗ shock	8.7 ± 8.4	10.1 ± 8.9	-0.36	0.72
Number of shocks	2.2 ± 1.3	3.2 ± 1.47	-1.59	0.12

This table shows that survived patients had significantly shorter time to start CPR and shorter CPR time when compared with non-survivals.
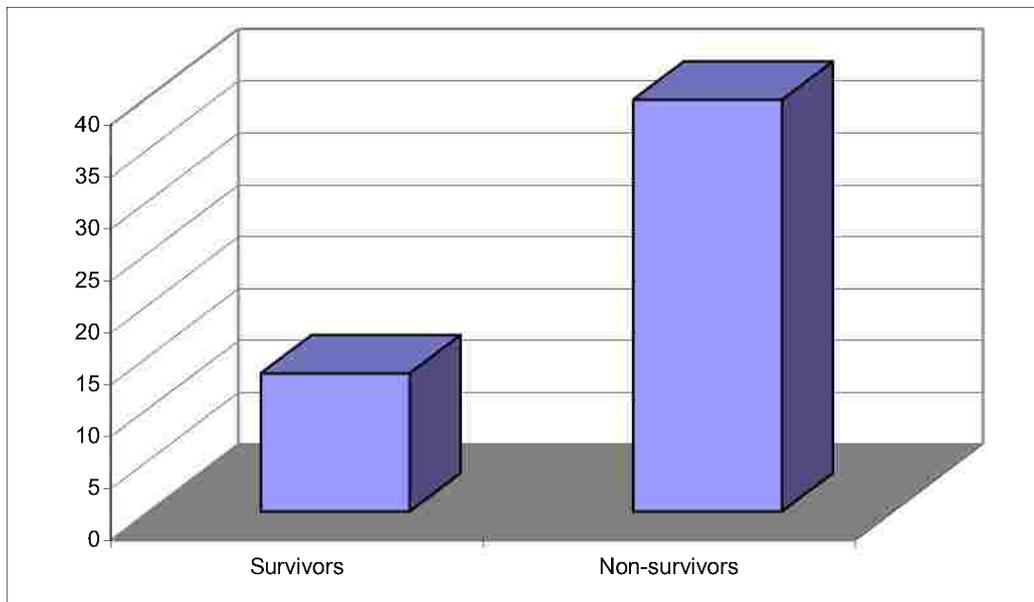
Figure (9): Comparison between CPR durations in survivors and non-survivors(survived patients had significantly shorter time to start CPR and shorter CPR time when compared with non-survivals).

Table (XIII): Comparison between survivors and non-survivors regarding the used medication.

	Survivors N=24	Non-survivors n=76	Chi-square	
			X2	p
Adrenaline	24	76	0.0	1.0
Atropine	7	17	0.46	0.49
Bicarbonate	12	28	3.6	0.058
Calcium gluconate	3	9	1.3	0.25
Amiodarone	3	7	0.21	0.64
Potassium chloride	1	1	0.75	0.38
Fluids	7	16	0.68	0.41
Magnesium sulphate	1	1	0.75	0.38
Thrombolytics	1	-	3.2	0.074
Lodocaine	1	-	3.2	0.074
Dopamine infusion	1	1	0.75	0.38
Glucose infusion	1	1	0.75	0.38

This table shows no significant differences between survivors and non-survivors regarding the used medications.