CARDIAC ARREST REGISTRY IN THE EMERGENCY DEPARTMENT AT ALEXANDRIA MAIN UNIVERSITY HOSPITAL

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Introduction

Cardiac arrest is a main cause of death worldwide. It represents a huge impact on socio-economic status in addition to affecting a large number of patients. Many of CA survivors have moderate to severe functional impairment after discharge. CA registry is important as it helps to improve resuscitation care in the emergency department over time. Additionally, it will provide a benchmark to assess the future effect of changes in patient management. During the past decade, both neurologic and survival outcomes after CA have improved at hospitals participating in a national quality-improvement registry. Currently, cardiac arrest registries in Africa and Middle East are scanty, although there are many registries in Europe and USA.

Aim of the work

The primary aim of this study was to monitor quality and quality improvement initiatives for CA patients by collecting data on processes of care and outcomes. The secondary aim is to determine incidence of different causes of CA and incidence of successful resuscitation.

Patients and Methods

All patients with confirmed cardiac arrest who receive resuscitation during the period from 1st June 2021 to 31st August 2021 were included in the study. Included patients were managed according to ALS and EPALS algorithms following ERC guidelines. The required data were collected prospectively with paper-based questionnaire modified from the "Utstein" style. The quality indicators related to process of care include proportion of patients with witnessed and monitored CA, proportion of patients with the start of CPR ≤1 minute and proportion of patients with time to the first rhythm analysis of ≤2 minutes. The three outcome indicators include proportion of patients with ROSC, survival to hospital discharge and 30 day survival.

Results

The current study reports that 84% of the study sample were witnessed at time of CA, 49.7% of them were monitored at time of CA, code started in ≤1 minutes in 86.3% of cases and 1st rhythm was recorded in ≤2 minutes in about 61.1% of all patients. Most of the study sample had an initial non-shockable rhythm (86.3%) while only 13.7% had a shockable initial rhythm. Almost half of CA cases in the current research are attributable to medical causes (50.3%) such as sepsis, septic shock, electrolyte disturbance, oesophageal variceal bleeding, hypovolemia, anaphylactic shock, etc. The current research also reports that 55.4% of all cases achieved ROSC, 41.2% of them survived to hospital discharge and 33% survived 30 days after ROSC. It was noted that patients with witnessed, monitored CA and initial shockable rhythm had better chances of ROSC and survival.

Table (1): Distribution of the studied cases according to quality indicators related to process of care (n = 175)

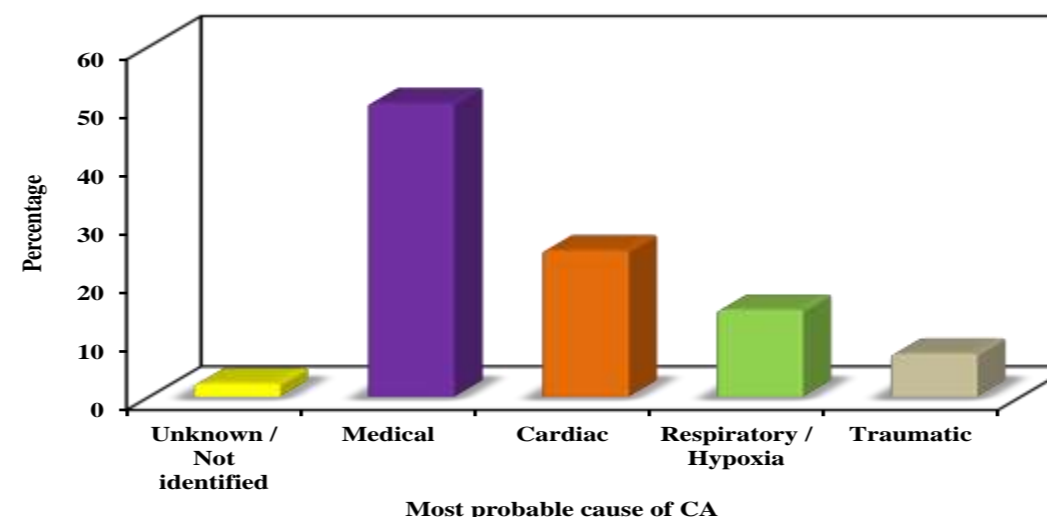|	No.	%
Witnessed		
No	28	16.0
Yes	147	84.0
Monitored		
No	88	50.3
Yes	87	49.7
Time starting (min.)		
>1	24	13.7
≤1	151	86.3
1st Rhythm analysis (min.)		
>2	68	38.9
≤2	107	61.1

Figure (1): Distribution of the studied cases according to most probable cause of cardiac arrest (n = 175)

Table (2): Distribution of the studied cases according to different parameters in each outcome (n = 175)

	Outcome						Total (n = 175)		χ²	MCp
	Death (n = 74)		ROSC (n = 97)		Re-Arrest (n = 4)					
	No.	%	No.	%	No.	%	No.	%		
Witnessed										
No	10	13.5	14	14.4	4	100.0	28	16.0	13.780*	0.001*
Yes	64	86.5	83	85.6	0	0.0	147	84.0		
Monitored										
No	48	64.9	40	41.2	0	0.0	88	50.3	13.223*	0.001*
Yes	26	35.1	57	58.8	4	100.0	87	49.7		
Initial rhythm										
Non Shockable	74	100.0	73	75.3	4	100.0	151	86.3	26.726*	<0.001*
Shockable	0	0.0	24	24.7	0	0.0	24	13.7		

Conclusion

Cardiac arrest management practice in the emergency department at AMUH is comparable to international registries as evidenced by the four quality indicators related to process of care. Most of cardiac arrest cases in the emergency department at AMUH are attributable to medical causes and have an initial non shockable rhythm. Witnessing and monitoring patients at time of cardiac arrest improve outcome and survival rates. Patients with initial shockable rhythm have better chances of survival. Cardiac arrest registry is important as it helps to improve level of care and outcome.