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ORIGINAL ARTICLE

# Comparative study between elderly and younger patients with acute coronary syndrome



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## KEYWORDS

ACS;  
CAD;  
Risk factors;  
Smoking;  
Dyslipidemia;  
Coronary angiography

**Abstract** *Background:* Acute coronary syndrome (ACS), one of the commonest causes of ICU admission, casts a large burden of cost on the health care system, with a huge mortality in the elderly, in Egypt and worldwide.

*Objectives:* Comparative study between elderly and younger patients with acute coronary syndrome in the last 4 years in the Critical Care department, Cairo University.

*Patients:* The population of the study included 570 patients who were admitted to the Critical Care department, Cairo University with ACS (between January 2011 and February 2015). Patients were divided into two groups: (1) Elderly  $\geq 60$  year. (2) Younger < 60 year.

*Methods:* Data collection focused on patients' demographics; risk factors for CAD, PCI indications; baseline cardiac status & associated medical conditions; angiographic & PCI procedure and clinical success of PCI.

*Results:* Dyslipidemia, hypertension and diabetes were the most significant risk factors for ACS in elderly ( $p < 0.001$ ), while smoking was the most significant risk factor in younger patients ( $p < 0.001$ ). Predictors of heart failure were age and TIMI score. Being elderly increases odds ratio of heart failure by 3.154 times, ( $P$  value .035), also increases in TIMI score increase the incidence of heart failure by 0.825 times, ( $P$  value < .001). Mortality was frequent in elderly than younger, ( $P$  value = 0.002).

*Conclusion:* Dyslipidemia, hypertension and diabetes were the most frequent risk factors for CAD in elderly, while smoking was the most frequent risk factor in younger patients. Mortality was more frequent in elderly than younger. Complications were more frequent in elderly than younger. A predictor of Heart failure was an increase in both age and TIMI score.

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## 1. Introduction

Acute coronary syndrome (ACS), one of the commonest causes of intensive care unit (ICU) admission, casts a large burden of cost on the health care system, along with a huge mortality in the elderly population [1], both in Egypt and

worldwide [2]. Patient registries (PRs) are organized systems using observational study methods to collect uniform data to evaluate specified outcomes for a population defined by a particular disease with predetermined scientific, clinical, or policy purposes. Furthermore, the information they provide is sometimes used in clinical guidelines to establish the range of benefit or harm of interventions [3].

## 2. Objective

Our aim was to evaluate the outcome of acute coronary syndrome patients admitted in Critical Care department, Cairo University in a retrospective registry, with a special emphasis on patient's demographics, risk factors, clinical presentation, in hospital mortality rate, reperfusion strategy and complications upon follow-up in the two main groups (younger and elderly patients).

## 3. Patient and methods

The population of the study included 570 patients who were admitted to the Critical Care department, Cairo University with ACS (between January 2011 and February 2015).

- Patient's data were retrieved through reviewing the electronic health record database [Medica Plus].
- Patients were divided into two groups:
  1. Elderly  $\geq$  60 year.
  2. Younger < 60 year.

## 4. Results

### 4.1. Demographic data (Age and sex)

There was a statistical significant difference between the studied groups with regards to age and sex,  $P$  value < .001. Males were more likely to get ACS than Females. See Table 1

## 5. Risk factors

There was a statistically significant difference between the studied groups with regards to smoking, diabetes, hypertension and dyslipidemia ( $P$  value < 0.001, 0.003, 0.001, 0.001, respectively) See Fig. 1.

### 5.1. In hospital mortality

There was a statistical significant difference between the studied groups with regards to in hospital mortality,  $P$  value 0.002. See Table 2.

### 5.2. Secondary outcome

There was no statistical significant difference between the studied groups with regards to secondary outcome, except for heart failure  $P$  value < 0.001 and arrhythmia (AF)  $P$  value 0.002. See Table 3.

### 5.3. Complications

There was a statistical significant difference between the study groups with regards to pulmonary edema, cardiogenic shock, cardiac arrest and post MI angina with values 0.041, < 0.001, 0.004 and 0.047, respectively. See Fig. 2.

### 5.4. Diagnosis

There was a statistical significant difference between the studied groups with regards to the prevalence of acute coronary syndrome (STEMI, NSTEMI, UA);  $P$  value < 0.001. See Table 4.

### 5.5. Killip classification

There was a statistical significant difference between the studied groups with regards to Killip classification,  $P$  value < 0.001. See Fig. 3

### 5.6. Reperfusion data

There was a statistical significant difference between the studied groups with regards to coronary intervention,  $P$  value 0.012. See Table 5.

### 5.7. Primary PCI

There was a statistical significant difference between the studied groups with regards to primary PCI,  $P$  value 0.012. See Table 6.

### 5.8. Medications used

There was no statistical significant difference between the studied groups with regards to medications, except for GP IIb/IIIa and vasoactive drugs. There were statistical significant differences between the studied groups with  $P$  values 0.024 and 0.012 respectively. See Table 7.

### 5.9. Predictors of heart failure

Multivariate regression analysis showed that only age and TIMI score were predictors of heart failure. Being elderly

**Table 1** Age and sex frequency and mean for age in each group.

	Age groups		$t/\chi^2$	$P$ value
	Elderly	Younger		
Age (Years) (Mean $\pm$ SD)	66.8 $\pm$ 6.2	51.2 $\pm$ 7.7	$t = 25.348$	< 0.001
Sex	Female	71 (32.3%)	$\chi^2 = 16.72$	< 0.001
	Male	149 (67.7%)		

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