



## Letter to the Editor

## Depression after a cardiac arrest: An unpredictable issue to always investigate for



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Sir,

Survival with good neurological outcome after an out-of-hospital cardiac arrest (OHCA) has increased in the last fifteen years, [1] but, despite the quality of life of cardiac arrest survivors is generally acceptable, the incidence of depression after the event is not negligible, varying from 10% to 50% [2]. This fact is extremely important considering that depression negatively affect the quality of life and the outcomes [3]. However, available data refers mostly to Northern Europe area with a lack of data on Southern Europe people and this is not to be underestimated considering that the incidence of depressive disorders vary across different countries and, moreover, there are only few data about any correlation between OHCA characteristics and the onset of later depression [4].

We wanted to evaluate the incidence of depression in a population of Italian OHCA survivors and we wanted to verify whether some characteristics of the event could be associated to depression or not. We considered, through the Pavia Province Cardiac Arrest Registry (Pavia CARE), all the patients who suffered an OHCA in Pavia Province between October 2014 and September 2016 and who were discharged alive with CPC 1 or 2. A clinical psychologist telephone-administered PHQ-9 questionnaire focused to the first two weeks after the patient was discharged at home. The PHQ-9 questionnaire score ranges from 0 to 27 with cut points of 5, 10, 15, and 20 representing mild, moderate, moderately severe, and severe depression, respectively.

We were able to administer the PHQ-9 questionnaire to 32 patients with

baseline characteristics presented in Table 1. Among these patients, 6 (18.7%) showed a PHQ-9 score between 5 and 9, and 6 (18.7%) reached a PHQ-9 score  $\geq 10$ . The percentage of patients referred to the psychologist during hospitalization or at the hospital discharge was quite low: 33% in the first group and 50% in the second one.

Regarding the OHCA characteristics and the onset of depression, neither the time to ROSC ( $\rho = 0.15$ ;  $p = 0.38$ ) nor the duration of hospitalization ( $\rho = 0.29$ ;  $p = 0.11$ ) were found to be correlated to the PHQ-9 score. A weak but statistically significant reverse correlation was found between PHQ-9 score and age ( $\rho = -0.35$ ;  $p = 0.04$ ). Moreover, OHCA characteristics (OHCA location, OHCA witnessed status, bystander CPR, use of AED by bystander, admission to ICU and a STEMI cause of OHCA) were similar when comparing patients with a PHQ-9  $\geq 5$  to those with a PHQ-9  $< 5$  and patients with a PHQ-9  $\geq 9$  to those with a PHQ-9 score  $< 9$ .

Our findings confirm that depression in OHCA survivors is not negligible also in a Southern Europe population. Nevertheless, only a minority of patients with PHQ-9 score suggestive for depression were referred to a specialist during hospitalization or at hospital discharge. Moreover, we did not find any correlation between OHCA characteristics and the PHQ-9 values: this may be due to the fact that cardiac arrest being a sort of experience of death may induce depression more than other factors which may be important in other contest. We think that our results point out two critical issues: the first one is that, despite 2015 ERC Guidelines for post-resuscitation care [5], clinicians and cardiologists do not address the brain-related consequences of cardiac arrest as the cardiac ones, at least in our region; the second one is that

**Table 1**  
Baseline characteristics of the study population.

Age	Male	Etiology OHCA	Residential Location OHCA	OHCA Witnessed	CPR by bystander (in witnessed by bystander)	First rhythm shockable	Shock by bystander	Minutes from OHCA to ROSC	Admission in Intensive Care Unit	STEMI cause of OHCA	Days of hospitalization
62 $\pm$ 14	78.1%	100% Medical	62.5%	46.8% EMS; 53.2% bystander	88%	96.9%	9.4%	21 $\pm$ 23	65.6%	68.7%	15 $\pm$ 11

even after a case of a short and quickly treated cardiac arrest, depression may come out and this aspect could be really useful to who taking care of cardiac arrest survivors. So, we think that clinicians and cardiologists should always screen for depression to improve its recognition and treatment.

#### Conflict of interest

None.

#### References

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