

Brief Report

Alexithymia is a determinant of early death in the long-term course of post-myocardial infarction

Mauro Giovanni Carta,¹ Federica Sancassiani,¹ Davide Bina,¹ Marco Licciardi,¹ Giulia Cossu,¹ Antonio Egidio Nardi,² Luigi Meloni,¹ Roberta Montisci¹

¹Department of Medical Sciences and Public Health, University of Cagliari, Monserrato, CA, Italy; ²Laboratory of Panic and Respiration, Institute of Psychiatry of Federal University of Rio de Janeiro (IPUB/UFRJ), Rio de Janeiro, Brazil

Abstract

Among people with ST-segment elevation myocardial infarction (STEMI), high alexithymia was associated with delay to hospital arrival. High alexithymia could be a determinant of early death in the long term after STEMI. People with STEMI who participated in a survey in 2011, was tested about the state of life in 2021. The sample was divided into two cohorts (cut-off: TAS-20 \geq 61 in 2011). The relationship between possible death occurred and having high alexithymia was calculated by comparing the mortality after 10 years in the two cohorts through the Cox' pro-portional hazard model. Status in life was verified on 39.3% of the sample. No differences were found regarding age, sex, high alex-ithymia between individuals on whom it was possible to verify the state in life and in whose it was not. In 2021, among people having high alexithymia in 2011, a higher risk of early death was found (RR=5.75, CI 95% 1.116-29.637).

Introduction

A study published over ten years ago found that, in people coming to hospital for ischemic acute heart attack (acute myocardial infarction with ST segment elevation, STEMI), a high score on the Toronto Alexithymia Scale (TAS-20),¹ was associated with an excessive delay from time of the first onset of symptoms of hearth attack to hospital arrival and treatment.² This result found further confirmation in systematic reviews with meta-analyses^{3,4} and in a new study conducted by the same group on a larger sample size and with more restrictive inclusion criteria.⁵ As known the time between early acute myocardial infarction (AMI) symptoms and the arrival in a hospital for seeking care is a crucial factor for survival. An early reperfusion limits the necrosis of the myocardial tissue and if reperfusion does not occur within two hours from symptoms onset, survival decreases drastically.⁶

As reported by the most recent contributions,⁷ alexithymia is a cognitive deficit in emotional processing that could not allow to

properly differentiate bodily sensations (thus signals of illness) from affects' arousal, with restricted imaginal activity. As one of the most relevant elements related to time to reperfusion treatment is the patient's decision to delay seeking care, it is intuitive that having strong alexithymia traits can determine indecision, difficulty in recognizing the severity of the symptoms⁸ and therefore can be associated with the delay and with the probability of survival from the acute episode.

The studies conducted so far have examined patients who survived an acute myocardial infarction during the first days after hospitalization and intervention. However, if the alexithymia traits can cause a delay in seeking treatment, it is also possible that it can have a negative effect in the post-infarct course. This could happen both because people with alexithymia may not adequately cope with a new myocardial infarction (relevant for the course and not rare), with angina attacks (relevant for the course and frequent) but also because it is known that alexithymia can negatively influence the course and treatment of anxiety and depressive disorders,^{9,10} that typically impairs outcome after AMI. Our study hypothesis is thus that a high alexithymia, measured immediately after hospitalization at the time of an acute STEMI, could be a determinant of early death in the long term.

Design and methods

The study was conducted on a cohort of 83 people with STEMI who had participated in the previously mentioned survey in 2011 that was aimed at investigating the association between alexithymia and delay in calling for help² using the TAS-20 for measuring of alexithymia.

In 2021, the state of life of these people was verified based on the allowed contacts on the clinical documentation. Each medical record contained a telephone number of a family member or friend who could be asked for information. This number had been provided by the same patient who had given consent for a possible

Significance for public health

Among people with ST-segment elevation myocardial infarction (STEMI), high alexithymia is associated with delay to hospital arrival. High alexithymia could be a determinant of early death in the long term after STEMI. Although the results of this study are preliminary, they highlight a relevant prognostic factor, alexithymia, in relation to the long-term course of post-myocardial infarction, condition responsible for more than 7 million deaths each year. As known, alexithymia may be improved with adequate interventions of recognized efficacy. This means that a significant proportion of early deaths among people with previous STEMI could be avoided through an adequate intervention on alexithymia.

contact. Given the current privacy law, this was the only number that could be contacted. In case the number was changed (and often it was) or no one answered, it was not possible to conduct further investigations.

The interviewers gave comprehensive information by phone about health and state in life of the patient if a relatives/friend was traceable. The whole sample of traced people was divided into two cohorts according to the alexithymia scores reported in the previous study based on the predefined cut-off of TAS-20 ≥ 61 which identifies people with high alexithymia.

The relationship between the dependent variable (possible death occurred) and having high alexithymia was calculated by comparing the mortality at 10 years in the two cohorts (exposed and not exposed to high alexithymia) through Kaplan-Meier analysis and the proportional hazard model of Cox, using as co-variables age (continued) and gender. The study was conducted after approval by the independent ethics committee of the University Hospital of Cagliari in accordance with the Helsinki agreements and national and European Union laws on privacy.

Results

The status in life was verified of only on 33 people (39.3% of the whole sample). However, a comparison according to age, sex and number of people with TAS score < 61 between the group of individuals on whom it was possible to verify the state in life ($n=33$) and the group in which it doesn't ($N=50$), showed no difference in the two groups (Table 1). In people on whom it was possible to verify the state in life, the Table 2 shows the condition of been alive in September 2021 in the cohort of those having high score at TAS 20 in 2011 and those do not, the comparison found a higher risk of early death in the group with previous high alexithymia [Log Rank Mantel-Cox = 6.899, 1 df, $p=0.009$; RR=5.75 (CI 95% 1.116-29.637)], the result is coherent with that calculated with Kaplan-Meier analysis which results is shown in Figure 1.

Discussion

The strict European laws on the respect of privacy and the fact that having operated in the record of an emergency unit that did not follow the patients over time allowed to verify the status in life

among only 39.3% of the whole sample. This is an obvious limitation of our study, even if the sample of people whose life we have been able to ascertain does not differ for important determinants of possible death (including the frequency of people with high alexithymia) from the sample of people not traced.

The results of this study, however, are so relevant that they can set our study as a milestone towards future research. In fact, our results highlight a relevant prognostic factor, alexithymia, in relation to the long-term course of post-myocardial infarction, condition responsible for more than 7 million deaths each year.¹¹ The percental of death due to a first myocardial infarction is estimated to be 23% before the arrival to hospital for care, 4.1% during hospitalization;¹² 9.8 % during the first year after hospital discharge¹³ and 5% per year in each subsequent year.¹¹ After 15 years from acute event, cumulative mortality can reach 70%. The outcome worsened in case of a second myocardial infarction.¹¹ These figures explain the public health relevance of our data

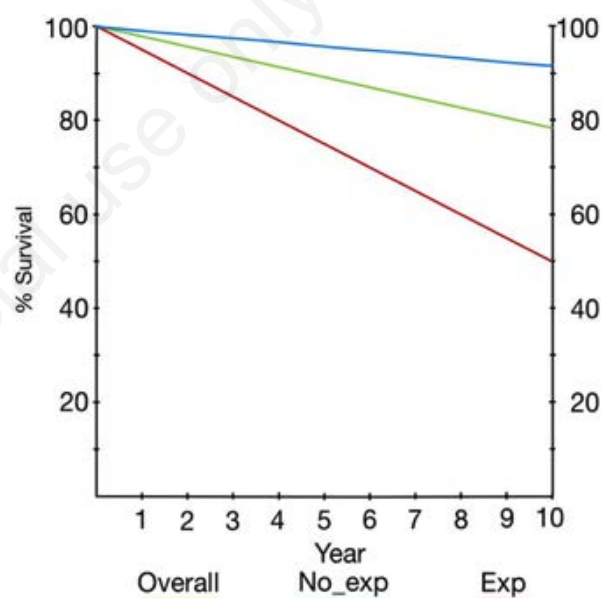


Figure 1. Survival analysis in the overall cohort and in exposed and not exposed to high alexithymia.

Table 1. Comparison between individuals on whom it was possible or not to verify the state in life.

	Age ≥ 74 , n (%)	Sex female, n (%)	Alexithymia TAS-20 ≥ 61 , n (%)
With verification if alive at 10 years N=33	15 (45.45)	5 (15.15)	10 (30.3)
Without verification if alive at 10 years N=50	18 (36.0)	15 (30.0)	20 (40.0)
Difference	$\chi^2=0.742$, $p=0.389$	$\chi^2=2.048$, $p=.152$	$\chi^2=0.810$, $p=0.368$

Table 2. Been alive in September 2021 in the two cohorts.

Cohort	Total n	Deaths on September 2021	Incidence /10 years x 100
Exposed to high alexithymia in 2011	10	5	50.0
Not exposed to high alexithymia in 2011	23	2	8.7
Overall	33	7	21.2

Log Rank (Mantel-Cox) = 6.899, 1 df, $p=0.009$, RR=5.75 (CI 95% 1.116-29.637); χ^2 with Yates correction = 4.858, RR=5.75 (CI 95% 1.116-29.637).

should it be confirmed.

As known alexithymia may be improved with adequate interventions of recognized efficacy.^{14,15} This means that, if our data were confirmed, a significant proportion of early deaths could be avoided through an adequate intervention on alexithymia.

Although our data, as affirmed before, are preliminary, our study lays the foundation for prospective multicenter studies in which to confirm our hypothesis. The study also lays the basis for the possibility of the privacy managers, to agree of a more extensive investigation through further methods of verifying the status in life (for example, requesting the registry offices of the municipalities of residence). This type of methodology is, in fact, granted only in cases of proven importance by the so-called privacy guarantors according to the diction of the European law

Correspondence: Federica Sancassiani, Department of Medical Sciences and Public Health, University of Cagliari, Asse Didattico E, SS 554 Bivio Sestu, 09042 Monserrato, CA, Italy. Mobile: +39.349.3119215. E-mail federicasancassiani@yahoo.it

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and this study provides the necessary clinical evidence. On the other hand, it would be possible, but not ethically correct, to conduct verification studies in countries with less restrictive rules on the verification of life status in scientific studies.

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