



## Clinical paper

Factors predicting quality of life and societal participation after survival of a cardiac arrest: A prognostic longitudinal cohort study<sup>☆</sup>Daan Verberne<sup>a,f</sup>, Véronique Moulaert<sup>b,c</sup>, Jeanine Verbunt<sup>b,d</sup>, Caroline van Heugten<sup>a,e,f,\*</sup><sup>a</sup> Maastricht University, Department of Psychiatry and Neuropsychology, Faculty of Health, Medicine and Neuroscience, School for Mental Health and Neuroscience (MHeNS), P.O. Box 616, 6200 MD, Maastricht, The Netherlands<sup>b</sup> Adelante, Centre of Expertise in Rehabilitation and Audiology, 6432 CC, Hoensbroek, The Netherlands<sup>c</sup> University Medical Centre Groningen (UMCG), Department of Rehabilitation Medicine, 9713 GZ, Groningen, The Netherlands<sup>d</sup> CAPHRI, School for Public Health and Primary Care, Department of Rehabilitation Medicine, Maastricht University, PO box 616, 6200 MD, Maastricht, The Netherlands<sup>e</sup> Maastricht University, Department of Neuropsychology and Psychopharmacology, Faculty of Psychology and Neuroscience, P.O. Box 616, 6200 MD, Maastricht, The Netherlands,<sup>f</sup> Limburg Brain Injury Center, P.O. Box 616, 6200 MD, Maastricht, The Netherlands

## ARTICLE INFO

## Article history:

Received 9 August 2017

Received in revised form 9 November 2017

Accepted 30 November 2017

## Keywords:

Cardiac arrest

Quality of life

Societal participation

Predictors

## ABSTRACT

**Aim:** For those patients who suffer unfavourable outcome after survival of cardiac arrest, it is important to know whether this can be predicted at an early stage. Support can subsequently be provided. This study aimed to identify early prognostic factors of quality of life (QOL) and societal participation at one year post-cardiac arrest.

**Methods:** The design was a prospective longitudinal cohort study following cardiac arrest survivors up to one year. Prognostic personal, injury-related, function-related and subjective outcome factors were selected and entered into a hierarchical regression model to assess whether they were predictive of QOL and societal participation at one year post-cardiac arrest.

**Results:** Hundred and ten cardiac arrest survivors were included. Not having a partner, more functional limitations (at two weeks) and cognitive complaints were significantly predictive of lower physical QOL, while higher levels of anxiety and depression symptoms (at three months) were significant predictors of mental QOL. A neurological history and higher levels of anxiety and depression symptoms were significantly predictive of lower brain injury-specific QOL. Societal participation was only predicted by pre-morbid functioning.

**Conclusion:** This study identified prognostic factors of QOL and societal participation one year after survival of cardiac arrest. Screening of these factors in early stages can identify those survivors with possibly unfavourable QOL at one year post cardiac arrest. For those survivors, preventive and targeted interventions may be offered.

© 2017 Elsevier B.V. All rights reserved.

## Introduction

Surviving a cardiac arrest is not always without consequences, especially for those suffering a hypoxic brain damage. It was recently shown that most patients return to pre-arrest levels of functioning in terms of participation (for instance return to work) and quality of life (QOL) [1,2]. However, a minority of the survivors

cannot return to their life as before and for those it is important to know whether this unfavourable outcome can be predicted at an early stage in order to support people.

In a retrospective cohort study, we showed that age and gender were significantly related to societal participation and QOL three years after the cardiac arrest [3]. Physical QOL was significantly related to cognitive complaints, daily activities, post-traumatic stress and fatigue, while mental QOL was explained by emotional problems, cognitive complaints and fatigue [4]. Apparently both personal factors and subjective outcome influence long term outcome.

Prognostic studies on long term participation and QOL after cardiac arrest are however scarce. In a prospective cohort study

<sup>☆</sup> A Spanish translated version of the abstract of this article appears as Appendix in the final online version at <https://doi.org/10.1016/j.resuscitation.2017.11.069>.

\* Corresponding author at: Maastricht University, School for Mental Health and Neuroscience (MHeNS), P.O. 616 UNS 40, 6200 MD, Maastricht, The Netherlands.

E-mail address: [c.vanheugten@maastrichtuniversity.nl](mailto:c.vanheugten@maastrichtuniversity.nl) (C. van Heugten).

on moderate to severe traumatic brain injury (TBI), emotional problems next to length of stay, have shown to be independent predictors of long term mental QOL, while physical QOL was explained by time since injury, length of stay and functional outcome [5]. From a TBI perspective, this means that injury-related factors are also important. Forslund et al. [6] additionally showed that better community integration and a positive change in physical QOL over time predicted better physical QOL at two years post TBI. Lower depression scores and positive change in mental QOL over time predicted higher mental QOL scores at two years. In a prospective cohort study on mild stroke patients [7], stable low QOL and a decline in QOL over time were predicted by psychological factors such as less acceptance, self-efficacy, and proactive coping and more neuroticism, pessimism, helplessness, and passive coping.

From these retrospective studies on cardiac arrest and prospective studies on other forms of brain injury it can be concluded that a prediction model for long term societal participation and QOL should incorporate many different prognostic factors related to the person, the injury and the short-term outcome. The aim of the current study was therefore to investigate which factors predict long term outcome in terms of societal participation and QOL after survival of a cardiac arrest. We considered personal (premorbid) factors, injury-related factors, early function-related factors and subjective outcome at three months post cardiac arrest as independent predictors of outcome (QOL and societal participation) at one year.

## Methods

### Design

The current study stems from the project called 'Activity and Life After Survival of a Cardiac Arrest' (ALASCA) [ISRCTN74835019] [8] which was a prospective longitudinal cohort study with a nested randomised controlled trial ( $n=238$ ). The current study excluded patients who were allocated to the intervention group ( $n=97$ ) and therefore the current cohort consists of 141 patients ( $238 - 97 = 141$ ) who only received the usual care. Their situation seems most reflective for a 'natural' course and is in comparison with the design of the study of Moulaert et al. [1].

### Participants

Recruitment of patients took place between April 2007 and December 2010 at coronary care- and intensive care units of seven hospitals in the Netherlands. The hospitals had protocols for the care of resuscitation patients in accordance with international guidelines, thereby providing hypothermia and pacemaker implementation [9].

Inclusion criteria were survival more than two weeks after an in- or out-of-hospital cardiac arrest, living within 50 km of one of the participating hospitals, age  $\geq 18$  and sufficient command of the Dutch language. Excluded were patients who had a life expectancy of less than three months due to another medical condition, as estimated by their treating physician.

### Procedure

Newly admitted patients who survived a cardiac arrest were assessed for eligibility and when eligible, approached for participation in this study three to ten days post cardiac arrest. Informed consent was subsequently obtained. Caregivers were asked to give provisional consent when patients were not capable of giving consent at that point. Patients were again approached when they had the capacity to decide and could be assessed. After informed consent was obtained, medical and socio-demographic information

was collected from medical records. Baseline measurements took place at two weeks post-cardiac arrest which had a follow-up at three and twelve months. Measurements took place at the patients' home, conducted by research assistants. All participating hospitals followed the same procedure.

This study complies with the Declaration of Helsinki and has been approved by the Medical Ethics Committee of Maastricht University Medical Centre, and all participating hospitals.

### Measures

#### Outcome variables

**Quality of life.** The Medical Outcomes Study 36-item Short Form Health Survey (SF-36/RAND-36 item Health Survey) is a generic QOL measure. A Physical Component Score (PCS) and the Mental Component Score (MCS) can be calculated with the use of the original manual [10]. Higher scores are indicative of higher self-reported physical/mental functioning.

The Quality Of Life after Brain Injury (QOLIBRI) questionnaire consists of 37 items (0–100 scale) where higher scores are indicative of higher brain injury-specific QOL [11].

**Societal participation.** The Community Integration Questionnaire (CIQ) consists of 15 items where higher scores indicate a higher level of societal participation [12].

#### Predictor variables

**Personal factors.** The following factors were retrieved from medical files and/or at initial assessment: age at cardiac arrest, gender, if the patient had a partner and a cardiac and neurological history.

The Frenchay Activities Index (FAI) consists of 15 items where higher scores are indicative of a higher level of extended activities of daily living (ADL) [13].

**Characteristics of the cardiac arrest.** Whether the patient suffered an in- or out of hospital cardiac arrest, time collapse to return of spontaneous circulation (ROSC; minutes) and possible coma (in days), and whether or not an implantable cardioverter defibrillator (ICD) had been implemented were retrieved from medical files and/or collected at the initial assessment.

**Function-related variables.** Cardiac pump function after the cardiac arrest is indicated by the left-ventricular ejection fraction (LVEF), which was retrieved from the medical files at the initial assessment.

The New York Heart Association Classification (NYHA) is a functional measurement and classification system of cardiovascular disability. A higher score is indicative of more functional limitations [14].

The Barthel Index (BI) consists of 10 items (range 0–20) where higher scores are indicative of a higher level of independence in basic ADL [15].

The Cognitive Log (CogLog) is a 10 item cognitive screening instrument (0–30 range). Higher scores indicate better cognitive functioning [16].

**Subjective outcome.** The Cognitive Failures Questionnaire (CFQ) consists of 25 items (0–100 scale) where higher scores indicate that the patient has more cognitive complaints [17].

The Hospital Anxiety and Depression Scale (HADS) consists of 14 items (range 0–21) where higher scores represent more experienced problems, for either the subscale Anxiety or Depression [18].

The Impact of Event Scale (IES) consists of 15 items (0–75 range) in which higher scores are indicative of a higher level of posttraumatic stress [19,20].

Download English Version:

<https://daneshyari.com/en/article/8675821>

Download Persian Version:

<https://daneshyari.com/article/8675821>

[Daneshyari.com](https://daneshyari.com)