Patient Education and Counseling xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Patient Education and Counseling

journal homepage: www.elsevier.com/locate/pateducou

Short communication

Knowledge and preferences regarding cardiopulmonary resuscitation: A survey among older patients

Trudy J Zijlstra[a], Sonja J Leenman-Dekker[a], Hilbrand KE Oldenhuis[b], Henk EP Bosveld[a], Annette J Berendsen[a,*]

[a] Department of General Practice, University of Groningen, University Medical Center Gro-ningen, Groningen, The Netherlands
[b] School of Social Studies, Hanze University of Applied Sciences, Groningen, The Netherlands

ARTICLE INFO

Article history:
Received 25 February 2015
Received in revised form 16 July 2015
Accepted 24 July 2015

Keywords:
Resuscitation
Decision making
Patient preference

ABSTRACT

Objective: Survival rates following cardiopulmonary resuscitation (CPR) are low for older people, and are associated with a high risk of neurological damage. This study investigated the relationship between the preferences, knowledge of survival chances, and characteristics among older people regarding CPR.
Methods: A cross-sectional, self-administrated survey was distributed by researchers to 600 patients aged at least 50 years. The 14-question survey tool was used to collect basic demographic data, knowledge about CPR, and preference for CPR. We performed binary logistic regression analysis to predict whether patients wanted to receive CPR or not.
Results: The response rate was 48%. Most respondents (84%) predicted the estimated survival rate to be higher than the actual rate. Patients were significantly less likely to want to receive CPR if they correctly estimated the survival rate, had ever contemplated CPR, were older, or female. Discussing CPR with a doctor had no influence on patient preference for CPR.
Conclusion: Older patients choose to receive CPR based on incorrect knowledge.
Practice implications: Doctors should be aware of the impact of knowing the true chances of survival on patient preference for CPR. Knowledge and skills need to be updated to provide this information to patients.

1. Introduction

Cardiopulmonary resuscitation (CPR) is an important first aid skill. In 2011, the Amsterdam resuscitation study (ARREST) showed an out-of-hospital survival rate of 23% [web 1]. Of survivors 51% suffered from hypoxic–ischemic encephalopathy [1]. The survival rate of CPR out-of-hospital of people aged ≥70 years is just 4.1% [2]. The likely prognosis and quality of life are the main determining factors of an order to stop CPR [3]. Physicians may withhold CPR if a patient has signed a do-not-resuscitate (DNR) order. Therefore, it is important to know the patient's preference about this.

One study showed that just 2.7% of seriously ill people were aware that the survival rate following CPR was less than 10% [4]. Older studies showed that, after receiving information on survival rates, patients were more likely to choose not to be resuscitated [5–8]. In contrast, a more recent systematic review concluded that the effects of knowledge on preferences were unknown [9].

Physicians should be able to guide patients to make decisions. However, in a previous study, one-third of patients said that they did not want to discuss CPR with a physician [4]. Patient characteristics may also influence their preferences. Laakkonen et al. showed that patients who preferred not to be resuscitated were older, female, widowed, had signs of depression, and reported a lower quality of life [10].

We aimed to clarify the knowledge older patients have about CPR out-of-hospital, as well as their preferences for CPR. In addition, we sought to clarify whether improved knowledge of success rates, discussion about CPR, or specific patient characteristics influenced their preferences.

2. Methods

A cross-sectional survey in general practices in the north of the Netherlands in March 2013.

* Corresponding author at: Department of General Practice, University of Groningen, University Medical Center Groningen, PO Box 196, FA20, 9700 AD GRONINGEN, The Netherlands. Fax: +31 503632963.
E-mail addresses: trudyzijlstra@yahoo.com (T.J. Zijlstra), s.j.leenman@gmail.com (S.J. Leenman-Dekker), h.k.e.oldenhuis@pl.hanze.nl (H.K. Oldenhuis), h.e.p.bosveld@umcg.nl (H.E. Bosveld), a.j.berendsen@umcg.nl (A.J. Berendsen).

http://dx.doi.org/10.1016/j.pec.2015.07.025
0738-3991/

2.1. Study population

We extracted the information of registered patients aged ≥50 ($n = 3735$) from electronic patient records of both rural and urbanized general practices (total population ±7500), and excluded individuals with a history of psychiatric or cognitive impairment, or who were illiterate.

Computer randomisation was used to select 600 subjects stratified by age with a weighting factor of two for those older than 80 years, to ensure sufficient responses for this age group. Reminders were sent to all three weeks later. The ethical board of the University Medical Center Groningen (UMCG) decided that ethical approval was not required.

2.2. Questionnaire development

Questions were formulated based on data gathered from a literature search and interviews. The concept questionnaire was presented to ten patients to check the suitability. The final questionnaire comprised 14 questions:

- Six: personal and demographic characteristics, perceived general and psychological health (4-point scales).
- Six: preferences and thoughts about CPR (dichotomous (yes/no) or multiple-choice responses).
- Two: patients' knowledge about the expected outcome of CPR (estimation of survival rate and how certain they were)

In the accompanying letter, the Dutch resuscitation council definition of resuscitation was given [web 2].

2.3. Analysis

Descriptive statistics were used. The Mann–Whitney test was used to compare estimated survival rates and the certainty of respondents about their answers. Next, the relationship between individual variables and the wish to receive CPR was investigated. Respondents who did not indicate a preference were excluded. Univariate analysis was used to test the relation by non-parametric tests (Chi-square) and parametric tests (t-test) as appropriate. Outcomes with a p-value < 0.1 were included as independent variables in the binary logistic regression analysis. In the regression analysis, z-scores were used for the continuous variables of age and estimation of survival rate (backward conditional method).

3. Results

3.1. Personal and demographic characteristics

The response rate was 48% ($n = 287$). The mean age of the respondents was 68.4 years (SD = 11.4), 45% were men, 52% were Christian, and 96% were white Dutch (Table 1). General health and psychological health were considered good/very good by 90% and 75% of respondents, respectively.

3.2. Preferences and thoughts about CPR

Among the respondents, 73% indicated that they would like to receive CPR when necessary and 55% had discussed CPR. In the latter group, 73% had discussed CPR with their partner, 49% with their children or other family members, and 11% with their GP.

Table 1
Respondents' characteristics.

Respondents ($n = 287$)				
Average age (SD)	68.4 (11.4)			
Gender: male% (n)	44.8% (128)			
Religion: christian% (n)	52.5% (150)			
Ethnicity: Caucasian Dutch% (n)	95.5% (274)			
	Very good	Good	Not so good	Bad
Perceived general health% (n)	11.9 (34)	64.9 (185)	20.7 (59)	2.5 (7)
Perceived psychological health% (n)	24.0 (69)	65.5 (188)	9.4 (27)	1.0 (3)

Table 2
The results of the questionnaire about patient preferences and thoughts about cardiopulmonary resuscitation ($n = 287$).

	Yes % (n)	No % (n)	Do not know % (n)
1. If you have a cardiac arrest at this moment, would you like to receive CPR?	73.3 (209)	19.3 (55)	7.4 (21)
2. Before filling in this questionnaire, have you ever thought about your wishes to receive CPR?	66.4 (191)	33.4 (96)	
3. Have you ever talked with someone about your wishes or thoughts about CPR? If yes then answer question 4.	55.4 (159)	44.6 (128)	
4. If so, with who did you ever discussed CPR? ($n = 154$; multiple answers possible)	Partner	73	(113)
	Children/family	49	(76)
	Friends	17	(26)
	General practitioner	11	(17)
	Specialist in hospital	6	(9)
	Doctor at ER	5	(7)
	Yes % (n)	No, maybe later % (n)	No, never % (n)
5. Would you like to talk with someone about CPR right now?	19.5 (56)	69.3 (199)	10.5 (30)
6. With whom would you prefer to discuss CPR now or later? ($n = 249$; multiple answers possible)	Partner	57	(142)
	Children/family	51	(127)
	Friends	18	(46)
	General practitioner	51	(127)
	Specialist in hospital	18	(45)

Abbreviations: CPR; cardiopulmonary resuscitation.

Please cite this article in press as: T.J. Zijlstra, et al., Knowledge and preferences regarding cardiopulmonary resuscitation: A survey among older patients, Patient Educ Couns (2015), http://dx.doi.org/10.1016/j.pec.2015.07.025