The effect of hospital admission on the opinions and knowledge of elderly patients regarding cardiopulmonary resuscitation

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Abstract

Objective: to determine (i) if the opinions of elderly people, regarding their wish for cardiopulmonary resuscitation (CPR), change after staying in hospital, (ii) how much elderly people wish to be involved in making decisions about CPR and (iii) the degree of knowledge they use to make their decisions.

Design: consecutive sample survey.

Setting: assessment, treatment and rehabilitation unit.

Patients: 95 elderly inpatients (63% of all admissions) without a terminal illness who could give informed consent, interviewed after hospital admission. Sixty-seven were interviewed again at hospital discharge and three were interviewed 16–35 days after admission.

Intervention: patient education and semi-structured questionnaire.

Outcome measures: patients’ knowledge and opinions on basic knowledge of CPR, preference for CPR, who should decide and how this should be documented.

Results: knowledge improved after intervention, although patients persistently overestimated the success rate of CPR. Eighty percent on admission and 69% following a hospital stay wished to have CPR if necessary. Men were more likely to want CPR. On admission, 74% stated the patient should make the decision regarding CPR. This rose to 84% after a hospital stay. Only 57% wished to have their preference recorded in the hospital record and only 43% wanted their general practitioner notified of their wishes. Ninety-four percent felt comfortable with the interview.

Conclusions: elderly people wish to be consulted about CPR but many do not wish their preference to be committed to paper. Most older patients want CPR but these wishes may change with time. It is important that any recorded directive from a patient is updated frequently.

Keywords: cardiopulmonary resuscitation, elderly patients, patient understanding

Introduction

Asking a patient shortly after admission to hospital whether they would like to be resuscitated in the event of a cardiac arrest may be difficult for the doctor because of concern about provoking anxiety in the patient [1, 2]. It is tempting to delay such conversations until the patient’s health has improved. Unfortunately, it is at the beginning of a patient’s hospital stay that resuscitation may be more likely to be necessary. Although the wishes of the patient may not have been considered in the past [3], it has become increasingly apparent that patients should be involved in these decisions [4]. ‘Living wills’ may be of use to physicians, patients and family [5], however they are rarely used in the UK or USA and are not currently recognized in New Zealand law [6].

Elderly people may have different views on whether they would want cardiopulmonary resuscitation (CPR), should it become necessary. We were uncertain to what degree elderly people wished to be consulted about this. We were also unsure how much a person’s views might change with time or as their health changed, and hypothesized that their view after recovery from an illness or treatment in hospital may differ from that shortly after hospital admission. Whilst many studies have sought patients’ opinions about CPR [7–13], none has compared all patients’ opinions at
admission and again at discharge from hospital or following a period in hospital.

This study aimed to assess elderly people's opinions and knowledge of CPR, how much they wished to be involved in decision-making and whether their opinions changed during a hospital admission.

Methods

All elderly patients admitted over a 5-week period to all five assessment, treatment and rehabilitation wards at the Princess Margaret Hospital, Christchurch, New Zealand, were eligible to participate in this study. The unit admits approximately 2000 patients per year, which equates to around 15 patients/bed/year. Fifty-five percent of patients are admitted directly from the community and 45% are transferred from other hospitals. The median length of stay is 18 days. The number of CPR calls averages four per month.

Patients were excluded if they had communication difficulties, dementia—as evidenced by a Mini-Mental State Examination score [14] of 20 or less, acute confusion, depression or if they could not otherwise give informed consent. In addition, patients with a terminal illness such as advanced-stage heart failure, obstructive airways disease or malignancy were not approached for an interview.

Patients read an information sheet that gave an explanation of the nature of and reasons for the study. In order to obtain informed consent, this sheet also provided information about CPR. Specifically, this included how chest compressions and artificial respiration are administered, the possibility that permanent physical or mental handicap may be a complication and why CPR might be needed. Following consent, this information was reinforced and was supplemented orally by information on defibrillation, ventilation and drug administration. The difference between CPR and other life-saving treatments (for example dialysis or antibiotics for pneumonia) was emphasized. They were then asked whether they had heard of CPR before, what it involved and when it might be needed, as well as how effective they believed it to be. Level of knowledge and whether prompting was required for a correct answer were recorded. The success rate of patient knowledge and whether prompting was required for a correct answer were recorded. The success rate of patient knowledge and whether prompting was required for a correct answer were recorded.

Patients who agreed were interviewed a second time at the time of discharge.

Categorical variables were compared using the $\chi^2$ test. Age was compared between groups using Student's unpaired $t$-test. Step-wise logistic regression was used to determine which factors were independent predictors of patient preference. Results are given as means with 95% confidence intervals in parentheses (NS = not significant). The study was approved by the Southern Regional Health Authority (Canterbury) ethics committee.

Results

The results of the first interview are presented in Table 1.

Of 99 eligible subjects, 95 agreed to participate in the study and were interviewed 1.6 (1.4-1.8) days after admission. There were 60 women (63%) and 35 men (37%) with a mean age of 79.7 (78.0–81.3) years. Eighty-five percent lived at home (54% at home alone) and 15% lived in a rest home. Thirty-one percent were married, 56% were widowed, 4% were divorced. Fifty-one people (35% of all admissions over the study period) were not eligible to participate because of dementia (16), a terminal illness (13), depression (nine), dysphasia (seven) or an acute confusional state (six). People not interviewed were slightly older [mean age 81.6 (79.8–83.5) years] and there were more men (49% male, 51% female) but these differences were not statistically significant.

CPR knowledge

At first interview, 63 participants (66%) said they had heard of CPR before. However, many of these people were unsure what the procedure involved and when it would be required. Of the people who stated they had heard of CPR, seven (11%) did not know it involved chest compressions, four (6%) did not know it
involved mouth to mouth breathing and five (8%) did not know it was needed when the heart stops. Only 78% of participants who stated they had heard of CPR correctly answered all three of these components of the procedure spontaneously or with prompting.

**CPR preference**

Overall, 79% of participants wished to have CPR performed if necessary. People wanting CPR tended to be younger, male, married and living at home (Table 1). There was no significant correlation between preference for CPR and religion. Using age, gender, marital status and place of domicile in a step-wise logistic regression model, only male gender remained an independent variable predicting those who would want CPR ($P < 0.01$).

When asked to look to the future, 38% of participants would want CPR under all circumstances, 3% were unsure and 59% said their decision to have CPR would depend on their clinical state: the most influential clinical states were terminal illnesses (43%), increasing age (25%) and any conditions leading to increased dependency (20%).

The person nominated as most preferred to decide CPR status was the patient in 75%, the doctor in 22% and the family in 3%. If the patient was not in a position to make a decision, the next best choice was stated as the doctor in 66% and the family in 34%.

Of the 17 participants who did not want CPR, all but two (88%) wanted all other life-saving treatment.

Ninety-four percent of participants said they felt comfortable with the first interview and all but two consented to a second interview at discharge. A further two declined just before the second interview. Only 57% wanted their preference recorded in their medical record (57% of those who wanted CPR and 53% of those who did not want CPR; NS) and only 43% wanted their general practitioner notified of their wishes (43% of those who wanted CPR and 45% of those who did not want CPR; NS).

**Changes in CPR preference between admission and discharge**

Sixty-seven participants were interviewed for a second time within a week of discharge. An additional three patients had not left hospital by the conclusion of the study but were questioned over 2 days at the end of the study period. Two of these three patients were subsequently discharged in the following 2 weeks but one was discharged 59 days after the second interview. All of these three patients had improved clinically since their admission and the second interview occurred 16–35 days after the first. The mean time between interviews was 18 (15–21) days.

Of the 25 participants not interviewed twice, four declined, 12 were discharged before the interview, six had died and three had not been discharged but were not medically well enough to be interviewed before the end of the study period. The 70 subjects who were interviewed twice did not differ significantly in age, sex or place of domicile from the 25 who were interviewed at admission only.

Of the participants interviewed twice, on admission 80% indicated they would want CPR if required and this fell to 69% by discharge: 10 of the 56 participants who initially wanted CPR changed their minds to not wanting it and two of the initial 14 participants who...
The change in knowledge during admission is shown in Figure 1. There were significant improvements in knowing that the procedure involved chest compressions ($P < 0.01$) and mouth to mouth breathing ($P < 0.01$) and was needed when the heart stops ($P < 0.01$). Participants continued to overestimate the success rate for CPR. The mean success rate given by subjects at first interview was 48 (42–54)%%. Even though each participant was told that the success rate was in fact approximately 10% [15], the rate quoted by the participants before discharge had fallen only slightly and (non-significantly) to 42 (37–48)%.

The person who should decide whether to perform CPR was given as the patient in 74% on admission but this rose to 84% by discharge. The doctor as decision-maker fell from 22% on admission to 12% by discharge (NS). If the patient were unable to decide, the next best choice was stated as the doctor in 64% when interviewed on admission but this fell to 46% when interviewed at discharge. The family was the second choice in 36% on admission and in 54% on discharge ($P < 0.05$).

**Discussion**

Most elderly people admitted to hospital, who have the capacity to give informed consent and who do not have a terminal illness, would like CPR performed if necessary. Any decision to the contrary should, where possible, be discussed with the patient first. By discharge, fewer people wanted CPR, but more wanted to be the person to make this decision. Many participants were reluctant to have their decision recorded in the hospital record or made known to their general practitioner.

Most patients (80%) wanted CPR if it were required, although most could imagine a condition where they would not want resuscitation (59%). These results are similar to those obtained in several British studies, where 78% [7], 60% [8] and 92% [13] of elderly patients wanted CPR, but contrasts with a New Zealand study where only 55% of 49 elderly patients wished to be resuscitated [12]. The sample population in the earlier New Zealand study included day patients and patients from psychiatric services as well as medical inpatients [12]. Nearly 60% of patients in our study could imagine a circumstance when they might not want CPR. Increasing age was stated as a potential reason for not wanting CPR in 25% of this group despite the average age of participants being 80 years. Clearly they did not feel they had reached this 'increased' age yet. For those people not wanting CPR, all but two wanted all other life-saving treatment. It is important to emphasize that a 'not for resuscitation' order might more clearly be recorded as 'for active treatment but not for CPR'. It should not be confused with an order for palliative care.

Although most claimed to have a good understanding of the procedure, around 10% did not appreciate some of the basic components or indications. If fully informed consent is to be obtained for CPR, understanding will need to be checked carefully. Education is clearly effective however, as knowledge improved significantly following intervention. Optimism regarding the success rate persisted despite education. This requires further evaluation but is consistent with a British study where 56% of patients believed CPR to be successful in most cases and only 30% had a reasonable knowledge of CPR [7]. The age and gender ratio of subjects in that study were similar to ours. Others have highlighted the lack of public knowledge regarding CPR and the need to educate patients and relatives.
before informed consent can be obtained [11, 16]. In support of patient education, an earlier study in New Zealand showed that a semi-structured interview resulted in significant improvements in knowledge, although the subjects remained overly optimistic about the likely outcome [12].

One of the unexpected findings of this study was the ‘volatility’ of patients’ opinions. Several studies have sought patients’ opinions regarding CPR [7–12] however, we are aware of only one that has assessed any change in this opinion over time or following a change in clinical status [13]. In that study three of eight patients who initially did not want CPR changed their preference by discharge. However, patients initially wanting CPR were not re-questioned. This is important as we found that more patients changed to not wanting CPR following hospital admission. Patients in our study had only a short time to form an opinion and there were many patients who had not thought about CPR before. Their change in opinion may have been a result of their hospital admission or perhaps because they had had more time to consider the issue. Retaining the option of changing one’s mind probably also explains the surprising reluctance of participants to have their opinions committed to the medical record or conveyed to their general practitioner. It is possible that participants may have been influenced by knowing they were participating in a research project as they were told that the results of the survey would not affect their care unless they specifically wished this to be the case. The exact reasons for this reluctance are therefore not clear and should be explored further. Perhaps a decision made by a patient at one stage of their illness may not necessarily be representative of that patient’s wishes at a later date. Any documentation that does occur should indicate a time when it should be reviewed. At the very least, it would seem appropriate that resuscitation status be reviewed on each hospital admission. In a German study, seven of nine patients aged over 60 years who had been resuscitated said they would not wish this to occur a second time [17].

Most people interviewed in our study wanted autonomy in decision-making regarding CPR, and more wanted this by discharge. Before this study, we were concerned that a decision made shortly after admission, while a patient is unwell or in a dependent state, may not accurately reflect their opinion. Our findings tend to support this as participants tended to want to contribute more to decisions about their care after their health improved. Corresponding with this, the perceived need for a doctor to make this decision declined following hospital admission. The desire to involve family in decision-making remained variable throughout and certainly cannot be presumed. The views of relatives may even be contrary to patients’ wishes [18]. In a British study, where patients were interviewed on discharge only, 28% would have liked to have been involved in CPR-related decisions on admission [7]. It was not specified what education patients received about CPR; perhaps patients did not feel knowledgeable enough to make CPR-related decisions.

Almost all patients in our study felt comfortable with the interview, many spontaneously saying that such things should routinely be discussed. After the first interview nearly all participants agreed to be interviewed a second time and many said they felt better after discussing CPR. This concurs with the findings of others, where over 90% of patients reported feeling better or unchanged after reading about CPR options [19] and refute the view that CPR options should not be discussed with patients as such discussion might be too distressing for them.

All the patients identified themselves as European. We cannot assume that the wishes of Europeans will be held by other ethnic groups, and this should be an area of future research.

There was a gender difference between those who wanted CPR and those who did not (only one male patient did not want CPR). Such an association was also reported by Gunasekera et al., who found that 67% of male patients but only 24% of female patients would want CPR should the need arise [9]. Others have found no association between gender and preference for CPR [7, 12]. We found associations between desire for CPR and younger age, marital status and place of residence. All these associations were confounded by gender as the men studied were younger, more likely to be married and less likely to live in a rest home. Only one subject who was married and living with their spouse did not want CPR—possibly the presence of a long-term partner has a positive influence on a patient’s desire for CPR. People least likely to want CPR were those living in a rest home although most rest home residents who were admitted to hospital still wished to be resuscitated if it became necessary. Liddle et al. investigated these variables, but found no correlations [7]. Our study indicated that people who do not want CPR tended to be single, older, to live alone or in care and to be female, but these correlates were poor predictors of patient preference.

Elderly people want to be consulted about CPR. Knowledge should be checked carefully before participants can become actively involved in decision-making. Elderly people can learn about CPR and do retain information about the procedure. Most older patients want CPR but these wishes may change with time. It is important that any recorded directive from a patient be updated frequently.

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Key points

• Elderly people wished to be consulted about cardiopulmonary resuscitation and most would want this should it be necessary.
• Patients became less likely to want cardiopulmonary resuscitation after a hospital stay.
• There was a poor understanding of cardiopulmonary resuscitation. This improved following education, but the success rate was persistently overestimated.
• There was reluctance for patients to have their preference committed to paper or to tell their general practitioner.

References


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