

Cardiopulmonary resuscitation preferences among health professionals in Singapore

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Abstract

Introduction: Attitudes and preferences for cardiopulmonary resuscitation (CPR) among healthcare providers are varied among individuals and across countries. The purpose of this study was to determine these preferences amongst health practitioners attending the 3rd General Scientific Meeting of the Society of Intensive Care Medicine (Singapore) held in September 2003.

Methods: The survey was conducted among physicians, nurses and other health care providers attending a lecture during the critical care meeting in Singapore. The 35-item questionnaire included information about age, gender, profession, and religion, but no other identifiers were used. There was no follow up of 3 non-responders out of the 125 health care practitioners surveyed. The results were analyzed using contingency tables.

Results: 122 questionnaires were returned. Mean age was 33.5 ± 8.5 years and 9.8% were physicians, 74.5% were nurses. Physicians were significantly older ($p < 0.006$) compared to nurses. 34.4% said they

wanted "full code", while 16.4% indicated they had not thought about code status. 53.7% of respondents would decline CPR if they are older than 65 years, with nurses significantly more likely to decline ($p < 0.006$). 87.4% would decline CPR with end-stage renal disease, 92.6% with AIDS. The majority (58.5%) felt that future quality of life should be the most important factor in determining code status, following age. Respondents considered sepsis (25.8%) to carry the worst prognosis after CPR, following cancer (19.2%), SARS (14.2%), and myocardial infarction and AIDS (13.3%).

Conclusions: Many health care providers in Singapore are often involved in CPR situations, but it is impressive how the majority of the respondents in our survey would not want full resuscitation efforts should they experience a cardiopulmonary arrest. It is also interesting that they would use age more than 65 years in their decision to decline CPR. Many of health practitioners are uncertain which medical conditions are the ones with worst prognosis after CPR.

Keywords: Do-not-resuscitate, cardiopulmonary resuscitation, ethics, cardiac arrest, end-of-life

Introduction

Cardiopulmonary resuscitation (CPR) is a procedure that should be used in patients for whom there is a reasonable chance of restoring cardiopulmonary and cerebral func-

tion and prolonging life [1]. However, CPR is considered by some investigators and ethicists as controversial for patients near death and with poor chances of meaningful survival [2]. The appropriateness of CPR depends on three main factors including: the patient's own preferences, the expected outcome, and the cost of interventions to be done [3]. In critical care units and hospital wards across the world, patients and physicians struggle with decisions about whether or not to undertake CPR and other potentially life-sustaining treatment. Healthcare providers are frequently unaware of their patients' wishes concerning treatment [4]. Even when physicians are aware, they may find the patients' request problematic,

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although studies have suggested that it is unlikely that physicians' personal beliefs result in the failure to discuss these issues with their patients [4]. Decisions about the prospective use of CPR should be made jointly by the patients and physicians. But for patients to participate in medical decisions they must be informed about the risk and benefits of a procedure so that they can incorporate this knowledge into the choices they make.

We have previously reported the resuscitation desires of physicians practicing in a single medical center in the United States [5]. To our knowledge, there are no similar studies in Asian countries. Therefore, it was the purpose of this study to determine the resuscitation preferences of critical care healthcare providers practicing in Singapore.

Methods

We developed a 15 question, 35-item survey, which was administered to physicians, nurses, and other health professionals who attended the 3rd General Scientific Meeting of the Society of Intensive Care Medicine (Singapore) in September 2003. The questionnaire included socio-demographic characteristics but the data were confidential and no specific identifiers were utilized. Specific questions regarding CPR preferences were asked. Respondents were asked to identify their present resuscitation desires as well as their desires given some hypothetical situations. In addition, questions regarding post-CPR prognosis given various clinical conditions were included.

The survey also included questions regarding CPR preferences according to type of hospital practitioner administering CPR and how successful CPR was in their experience. The entire questionnaire can be found in the appendix of this article.

All data was entered into a computerized database by a single data entry clerk. Data was analyzed using STATA version 6.0 (STATA Corporation College Park, TX, USA). Ratio scale data was analyzed using Student's *t*-test and contingency tables were constructed for categorical data. A *p* value ≤ 0.05 was accepted as significant. No correction for multiple comparisons was made.

Results

The response rate was 97.6% (122/125). Mean age was 33.5 ± 8.5 years. The percentage of returned surveys by profession was 9.8% physicians, 74.5% nurses, 7.9% respiratory therapists and 7.8% pharmacists. Even though

physicians were significantly older than nurses ($p < 0.006$), there were no other statistical differences. When stating their preferences in code status, 34.4% said they want "full code", 21% said it depends on the location, 16.4% indicated they had not thought about their code status, 4.2% would choose full pharmacological support only and 11% would definitely have no code at all (See **Figure 1**). 53.7% of respondents would decline CPR if their age was older than 65 years, with nurses significantly more likely to decline ($p < 0.006$).

On the other hand, when asked if they prefer or decline CPR in the presence of an underlying disease, 87.4% would decline CPR with end-stage renal disease (ESRD), 92.6% with the acquired immunodeficiency syndrome (AIDS); 95% would decline if they had metastatic cancer, 83% would decline if they had spinal cord injury above T6, 89% would decline if they had Alzheimer's disease, and 86% would decline with severe chronic obstructive pulmonary disease (COPD).

In determining code status, the majority of respondents (58.5%) felt that future quality of life should be the most important factor, followed by age (18%), present condition (17%) and past medical history (6%). Respondents considered sepsis (25.8%) to carry the worst prognosis after CPR, followed by cancer (19.2%), severe acute respiratory syndrome (SARS) (14.2%), myocardial infarction and AIDS (13.3%), and ESRD (6.5%).

Discussion

Many health care providers are involved in CPR situations on a regular basis. However, in our study among healthcare providers attending a meeting in Singapore, based on individual knowledge and understanding of CPR, we found that the majority of respondents would not want full resuscitative support efforts if they had a cardiac arrest. This finding was particularly interesting, as the vast majority of respondents were relatively young.

It is also interesting to note that the majority of health care providers in this survey would decline CPR in specific conditions such as if they were older than 65 years of age or suffering from an underlying disease such as ESRD. Other specific illnesses such as AIDS and SARS were associated with a "do not resuscitate" answer in 13.3% and 14.2% of the respondents respectively. These answers were surprising as in some of these conditions, the prognosis of CPR is not dismal, as thought by many of the respondents. There was a report that the outcome for in-hospital cardiac arrest is similar for elderly and young people [6].

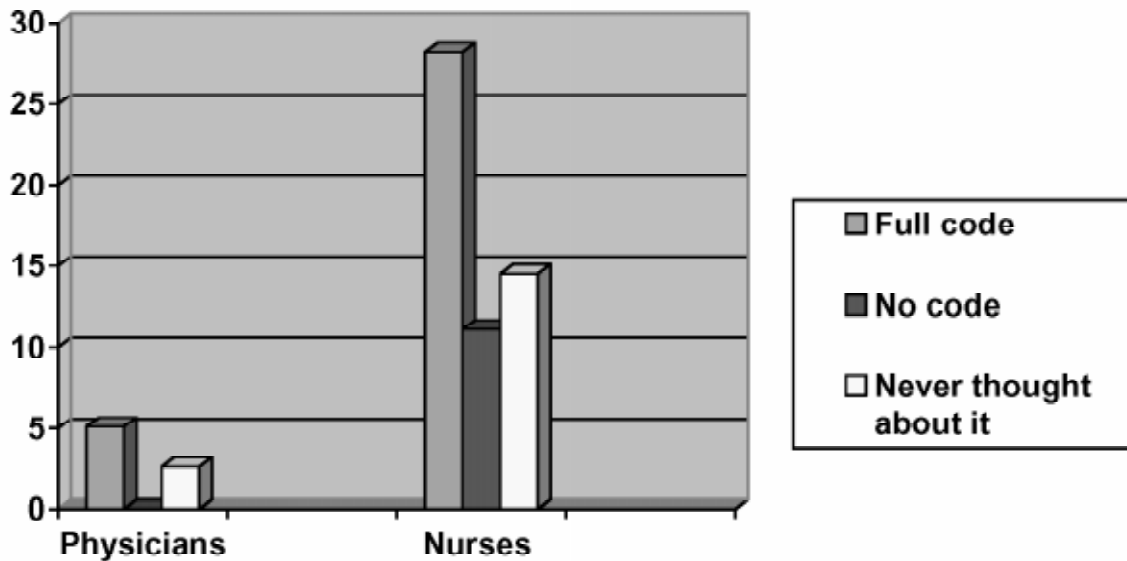


FIGURE 1. ACCORDING TO PROFESSION, PERCENTAGE OF PHYSICIANS' AND NURSES' RESUSCITATION CODE STATUS PREFERENCES. FULL CODE = ALL RESUSCITATION MEASURES TO BE PROVIDED INCLUDING CPR; NO CODE= NO RESUSCITATION MEASURES TO BE PROVIDED INCLUDING CPR.

Another important fact was that nurses were significantly more likely to decline CPR efforts. Nurses are generally the first responders to an in-hospital cardiac arrest and initiate basic life support while waiting for the advanced cardiac life support team to arrive. In some instances, the nursing staff provided basic and advanced cardiac life support. Most of the nurses in our survey worked in intensive care units. It is intriguing that the attitude of nurses would include a decision for no resuscitation in the majority of them. In a study by Dwyer and associates, the attitudes of individual nurses influenced the speed and level of involvement in true emergency situations, including CPR [7]. We could hypothesize that nurses were more likely to decline CPR efforts due, in part, to their own experience with resuscitation efforts. CPR education has been a matter of constant debate over the past 3 decades. Indeed, nurses' competence in CPR has been shown to be consistently poor over the past decade and previous studies have suggested that CPR teaching methods need to be evaluated and refined in order to improve practice among nursing personnel [8]. Possibly a better understanding of CPR outcome in a variety of clinical scenarios would change the responses of the nursing personnel.

In the case of physicians, we found them more likely to request CPR. This was not surprising as we have previously reported that the resuscitation attitudes of physicians at various levels of training, had no statistically significant differences in the resuscitation desires in worst prognostic scenarios as the training level advanced [9].

This seemingly unexpected attitude toward CPR could, in part, be due to the fact that many studies had documented the futile nature of CPR in various clinical contexts, making many health professionals take a skeptical stand to its benefits when it is merited [10]. As disease entities such as SARS and AIDS had a general fatal connotation, this would explain why some healthcare providers in this survey (about 13% to 15%) would not favor resuscitation. However, it also would appear that some healthcare providers in this survey did not have a good understanding of the prognostic issues in CPR in the scenarios asked. The lack of understanding of CPR success and outcome is not new and has been described previously. Miller and coworkers showed that physicians do overestimate the efficacy of CPR in many cases and that this overestimation may misrepresent the potential utility of this life-saving therapy to their patients and families [11]. It is clear that in many instances, the patient's wishes about resuscitation are based on the physician's judgment of medical utility of CPR under individual case scenarios [11]. In some other instances, recommendations for CPR are made by clinicians based on others' concerns, such as litigation and criticism, rather than their professional judgment of medical benefit or futility [12].

There is no question that, regardless of the country, health care professionals' beliefs about CPR are greatly influenced by experiences with particular patients and events. Previous studies have revealed that these particular experiences result in health care pro-

viders being less inclined towards desiring resuscitation efforts for themselves or suggesting it to their patients [5].

This study in healthcare providers practicing in Singapore is no different from previous studies as it relates to the vast majority of nurses refusing CPR for themselves [4-6,9]. We cannot assume that, based on the country in which the health care provider is practicing, one would have less desire towards resuscitation for themselves based on the present findings.

Conclusions

Many health care providers are often involved in CPR situations, and their feelings toward CPR are often influenced by personal experience. It is, however, surprising how most health professionals in this survey would decline full resuscitation efforts for themselves, should they experience a cardiopulmonary arrest. The future quality of life and aged above 65 yr are the most important factors in determining CPR status.

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APPENDIX: CARDIOPULMONARY RESUSCITATION PREFERENCES SURVEY

“The rapid growth of ICU’s in the last ten years has been remarkable. The allocation of critical care resources must follow certain criteria. The appropriate use of these units depends on adequate planning and patient selection.”
Based on the above, we would like to know what are your feelings and experience about the “**Do not resuscitate**” orders and what would happen if **YOU** were to be resuscitated.

Gender: _____Male _____Female

Age: _____

Circle your profession: Physician Nurse Respiratory Therapist Pharmacist

If nurse: Working in ICU _____YES _____NO

Religion: Christianity Islam Buddhism Jewish Atheist Other_____

Please, circle year of training:

House officer

Medical officer year 1, 2, 3, 4, 5

Registrar 1 2 3 Specialty:

Associate Consultant/Consultant

Please, if you are an attending physician of consultant, indicate years in practice:

a)1-3 b)4-6 c)7-10 d)10-13 e)14-17 f)18-20 g)More than 20

Specialty:_____

1. Of the following clinical entities, which one do you consider to carry the worst prognosis (outcome) in resuscitation attempts?
 - a) Cancer
 - b) Renal failure
 - c) AIDS
 - d) Sepsis
 - e) Myocardial infarction
 - f) SARS
 - g) Other:
2. When a “code status” is discussed with the patient or the family, which one do you consider the most important factor in determining “aggressiveness”?
 - a) Age
 - b) Past medical history
 - c) Present condition
 - d) Future quality of life
 - e) Other:_____
3. If **YOU** were to have a cardiac arrest in the middle of the night, at which of the following would you like to have your resuscitation efforts?
 - a) University hospital
 - b) Private hospital
 - c) Public hospital
 - d) None of the above

4. Most of the current training programs allow a physician in training to “run the code”. If you are the patient at the time, which of the following would you like to “run your code”?
- House officer
 - Medical officer
 - Registrar
 - Associate Consultant/Consultant
 - Critical Care. registered nurse
5. In your experience, of the following places, which one has more success in resuscitating patients?
- Emergency room
 - Operating room
 - General Medical/Surgical Wards
 - Telemetry unit (not ICU)
 - ICU
 - Outpatient clinic
 - Ambulance service
6. What is your present “code status”?
- Definitely full code
 - Definitely no code
 - Full pharmacologic support but no intubation/Chest compressions
 - I have never thought about it
 - Depends on where I am located at the time (Hospital, Street, home, park, etc)
 - Other: _____
7. If the attempts of resuscitation performed on you were not successful within the first 10 minutes, how long would you like the “Code team” to continue?
- Stop
 - 15 minutes
 - 20 minutes
 - 30 minutes
 - 60 minutes
8. If you were to have any of the following conditions, would you like to be resuscitated in an event of a cardiorespiratory arrest? (Please circle each answer)
- | | | |
|----------------------------------|-----|----|
| a) More than 65 years old | YES | NO |
| b) End Stage Renal Diseases | YES | NO |
| c) A.I.D.S. | YES | NO |
| d) Metastatic Cancer | YES | NO |
| e) Sepsis | YES | NO |
| f) Myocardial infarction | YES | NO |
| g) Spinal Cord injury (above T6) | YES | NO |
| h) Alzheimer’s dementia | YES | NO |
| i) Severe C.O.P.D. | YES | NO |
| j) Hemiplegia | YES | NO |
| k) SARS | YES | NO |
9. If you were to be admitted to an ICU with multiple system organ failure, which of the following would you choose?
- Do an aggressive effort to save your life during the first 72 hours after entering the ICU, then if no results stop
 - Continue full support until death
 - Request that your family make the decision based on your clinical condition
 - Other: _____

10. How many codes/CPR have you performed?
- a) None
 - b) 1-5
 - c) 6-10
 - d) 11-15
 - e) more than 15
11. In how many "codes"/CPR have you been involved, either as an observer or actively participating?
- a) None
 - b) 1-5
 - c) 6-10
 - d) 11-15
 - e) 15-20
 - f) more than 20
12. Of the above question (11), how many patients have you seen actually "walk out of the hospital" after having a cardiorespiratory arrest?
- a) None
 - b) Other:_(percentage of question 11)
 - c) Can't remember
13. If you were resuscitated, which of the following complications would you be more afraid to have?
- a) Anoxic encephalopathy
 - b) Hemiplegia
 - c) Cardiac contusion
 - d) Multiple rib fracture (unstable thorax)
 - e) Pneumothorax
14. In your opinion, an ICU is the place where:
- a) There is the beginning of a potential long-term, slow and painful death
 - b) Patients should be helped to have a peaceful and dignified death
 - c) Patients should be saved if they are salvageable
 - d) All the patients should be treated aggressively
 - e) Fancy technology and science meet but without any significant results
15. Comments: