

Cardiopulmonary resuscitation in the elderly: balancing technology with humanity

Michael Gordon,* MD, FRCP
Eric Hurowitz,† MD

Since its advent in 1960 closed-chest cardiopulmonary resuscitation (CPR) has become an accepted form of lifesaving therapy.¹ Although the technical aspects of CPR have undergone refinements and the availability of CPR has increased, it is only recently that attention has been paid to the process of selecting patients who are suitable for this treatment. CPR should not be considered an obligatory final attempt to prolong life no matter what the circumstances, especially in many chronically ill and debilitated elderly individuals. Although CPR is an important mode of therapy in appropriate situations its indiscriminate application may reflect poor clinical judgement.

Success of CPR in different age groups

Most studies of CPR in acute care hospitals reveal that in a mixed-age population approximately one third of the patients will survive the initial cardiac arrest; one third of the survivors will leave the hospital and about 80% will be alive 6 months later.² Some earlier studies of CPR administered to a mixed-age population suggest that patients over 60 years of age fare worse than younger patients.³ Most recent reports indicate that chronologic age alone is not a reliable predictor of the success of CPR.^{2,4,5} Factors such as the patient's underlying medical condition and the pathological diagnosis can more reliably predict the likely outcome of resuscitation.³⁻⁶ Recently, Bedell and coworkers² reported that in a mixed-age population compromised physical and mental function was a major determinant of a poor outcome of CPR, but advanced age alone did not alter the subsequent mental or physical status of the patient. They found that elderly patients who had been active

and independent before cardiac arrest fared substantially better than those who had been homebound and dependent.

Success of CPR in the elderly

Rather than evaluating mixed-age populations Gulati and colleagues⁴ and Fusgen and Summa⁵ examined selected groups of elderly patients and found that some survive CPR very well. The mean age of the patients in Gulati and colleagues' group was 75.6 (extremes, 64 and 91) years. As in Bedell and coworkers' study,² Gulati and colleagues' study revealed that the patient's previous level of health and function was the most important determinant of the outcome of CPR. As important as the success of CPR is the finding in all these studies that the elderly who survived CPR did not experience any significant mental impairment or any decrease in the level of overall function.^{2,4,5} Similar success of CPR performed in a coronary care unit in patients over 70 years of age has been reported by Berman.⁷

Selection of elderly patients suitable for CPR

Some elderly patients can receive CPR and be just as likely as younger patients to survive. Studies have also shown that the elderly are often able to return to their previous state of health. How can physicians decide which elderly patients are suitable candidates for CPR and which ones have such a dismal prospect for successful CPR that CPR should not be attempted? Physicians often presume to understand their patients' wishes about CPR even if the topic has not been discussed specifically. Bedell and Delbanco⁸ have shown that many physicians erroneously presume their patients' automatic acceptance of CPR in the event of cardiac arrest, and that often physicians do not discuss CPR with those at risk.

Much has been written about formal "do-not-resuscitate" orders for patients with terminal disease.⁹⁻¹² The Law Reform Commission of Canada has suggested that amendments be made to the Criminal Code so that physicians are no longer legally required to "continue to administer or undertake medical treatment when such treatment has become therapeutically useless and the circumstances are not in the best interests of the person for whom it is intended".¹³ The commission has also recommended that a physician's decision to resuscitate

*Medical director, Baycrest Terrace, Baycrest Centre for Geriatric Care, Toronto; head, Division of Geriatrics, Mount Sinai Hospital, Toronto; assistant professor, Department of Medicine, University of Toronto

†Fellow in geriatric medicine, University of Toronto

Reprint requests to: Dr. Michael Gordon, Baycrest Hospital, 3560 Bathurst St., Toronto, Ont. M6A 2E1

or not resuscitate a patient should be made "after discussion, explanation and consultation with those close to the patient".¹³

Physicians are more reticent about discussing the possibility of CPR with patients who are aged, debilitated or chronically ill, even when these patients are mentally competent, than they are with patients who are suffering from a terminal illness.^{8,14} For elderly residents and patients in nursing homes, retirement homes, homes for the aged or chronic care hospitals and for those temporarily in acute care centres it would seem prudent for physicians to estimate, communicate and document the desirability for CPR should cardiac arrest occur.^{15,16} At times a second medical opinion may be necessary. Physicians should discuss with patients and their families the possibility of cardiac arrest and the potential for successful CPR, thereby giving them the option of accepting or forgoing such treatment. Physicians should also periodically review and clearly record the decision of the patients and their families so that all members of the health care team are aware of it. A recent study at the Mather Home, in Evanston, Illinois, revealed that many competent elderly residents elected to forgo CPR in the event of a cardiac arrest.¹⁷

The results of published studies support the premise that CPR may be worth while in elderly individuals who are basically well and relatively independent and in those to whom skilled resuscitative efforts can be applied quickly. For those who are dependent because they have many major medical problems CPR would appear to be inadvisable because it would be unlikely to be successful. These factors, coupled with appropriate methods of communication and documentation, should be considered when policies for CPR are implemented in health care facilities in which elderly individuals reside or receive medical treatment.¹⁸

Conclusion

Death comes to all of us. Sometimes physicians must acknowledge its arrival even when advanced medical procedures can delay it for a short time. Not every death of an elderly individual should be considered as being caused by cardiac arrest. Many chronically ill elderly patients should be spared from spending their last hours in the grip of medical technology. By restraining unwarranted use of this technology we will allow such patients to die peacefully.

References

1. Kouwenhoven WB, Jude JR, Knickerbocker GG: Closed-chest cardiac massage. *JAMA* 1960; 173: 1064-1067
2. Bedell SE, Delbanco TL, Cook EF et al: Survival after cardiopulmonary resuscitation in the hospital. *N Engl J Med* 1983; 309: 570-576
3. Wildsmith JAW, Dennyson WG, Myers KW: Results of resuscitation following cardiac arrest. *Br J Anaesth* 1972; 44: 716-719
4. Gulati RS, Bhan GL, Horan MA: Cardiopulmonary resuscitation of old people. *Lancet* 1983; 2: 267-269
5. Fusgen I, Summa JD: How much sense is there in an attempt to resuscitate an aged person? *Gerontology* 1978; 24: 37-45
6. Messert B, Quagliari CE: Cardiopulmonary resuscitation — perspectives and problems. *Lancet* 1976; 2: 410-412
7. Berman ND: The elderly patient in the coronary care unit. I.

Acute myocardial infarction. *J Am Geriatr Soc* 1979; 27: 145-151

8. Bedell SE, Delbanco TL: Choices about cardiopulmonary resuscitation in the hospital: When do physicians talk with patients? *N Engl J Med* 1984; 310: 1089-1093
9. Rabkin MT, Gillerman G, Rice NR: Orders not to resuscitate. *N Engl J Med* 1976; 295: 364-366
10. Miles SH, Cranford R, Schultz AL: The do-not-resuscitate order in a teaching hospital. *Ann Intern Med* 1982; 96: 660-664
11. Linton AL: "DNR": a legitimate medical decision. *Ont Med Rev* 1983; 50: 239-241
12. Ad Hoc Committee on Medical Ethics, American College of Physicians: American College of Physicians ethics manual, part II: research, other ethical issues. *Ann Intern Med* 1984; 101: 263-274
13. Curran WJ: Quality of life and treatment decisions: the Canadian Law Reform Report. *N Engl J Med* 1984; 310: 297-298
14. Levenson SA, List ND, Zaw-Win B: Ethical considerations in critical and terminal illness in the elderly. *J Am Geriatr Soc* 1981; 29: 563-567
15. MacDonell JA: "No resuscitation" orders. *Can Med Assoc J* 1981; 125: 809-810
16. Angell M: Respecting the autonomy of competent patients. *N Engl J Med* 1984; 310: 1115-1116
17. Wagner A: Cardiopulmonary resuscitation in the aged: a prospective survey. *Ibid*: 1129-1130
18. Besdine RW: Decisions to withhold treatment in nursing home residents. *J Am Geriatr Soc* 1983; 31: 602-606

CMAJ will print notices of forthcoming meetings of interest to Canadian physicians as space allows. Because of the large number of meetings, we will list only those of national interest taking place in Canada or those outside Canada that are sponsored by a Canadian organization. Notices should be received at least 3 months before the meeting and should include the following information:

Date

Title

Place and city

Contact person and telephone number

Alternatively, publication of these and other notices of meetings can be guaranteed by placing an advertisement in our Classified Advertising section, where the appropriate charges and deadline dates can be found.

May

May 1-3, 1985

Workshop on Directions for Research in Cardiovascular Epidemiology

Ottawa

Secretariat, PO Box 3577, Stn. C, Ottawa, Ont. K1Y 4J7; (613) 725-4189

May 10-11, 1985

Acute Intervention and Cardiac Transplantation — University of Ottawa Heart Institute Scientific Symposium '85

Ottawa Congress Centre

Mrs. Sharon Wojciechowski, Symposium secretariat,

University of Ottawa Heart Institute, Rm. H-201, 1053 Carling Ave., Ottawa, Ont. K1Y 4E9; (613) 725-4779

May 24-25, 1985

The Medical Aspects of Dance

University of Western Ontario

Faculty of Part-time and Continuing Education, University of Western Ontario, London, Ont. N6A 5B8; (519) 679-3631

continued on page 789