

Implications Of The Use Of DNR Orders For The Elderly

E Cherniack

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Abstract

While the use of do-not-resuscitate (DNR) orders has been increasing worldwide, including the elderly, there are many unresolved issues pertaining to its use. There are wide variations in its use among patients, with the elderly more frequently receiving such orders, even after correcting for greater morbidity. In addition, it is still uncertain what effect the use of the DNR has on the cost and quality of care. It is possible that certain populations of elderly are receiving inadequate end-of-life care.

INTRODUCTION

While the use of do-not-resuscitate (DNR) orders, which preclude the use of cardiopulmonary resuscitation (CPR), has been increasing in the elderly worldwide,^{1,2,3,4,5,6,7,8,9,10,11,12,13} there are many unresolved issues regarding the application and impact on care of DNR orders. In this manuscript, two issues will be discussed: the evidence for and significance of inequities in the application of DNR orders, and the impact of DNR orders on patient care.

INEQUITIES IN THE USE OF DNR ORDERS

The elderly are more likely than young to be the recipients of DNR orders. Most^{14,15,16,17,18,19,20,21,22,23} surveys indicate older patients, regardless of prognosis, are more frequently given a DNR order than a young patients.^{14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24}

There are many studies, involving numerous patients of varying degrees of illnesses and settings, which support the proposition that DNR orders are written more frequently for the elderly. Wenger et. al. analyzed representative sample of more than 14,000 hospitalized Medicare patients and found a statistically significant increase of utilization of DNR with age; a patient aged 80 was more than twice as likely to receive a DNR order as one aged 65.¹⁸ While this may not seem so surprising given the increased morbidity and frailty of the elderly, even when this figure was adjusted for admission sickness and functional status, the older a patient was, the more likely the individual was to be given a DNR order. Furthermore, when the data was analyzed according to illness of the patient, for some diagnoses (i.e., congestive heart failure and myocardial infarction), older persons were

more likely to receive a DNR order, whereas for other diagnoses (i.e., pneumonia or stroke), they were not. Boyd et. al., also noted from a database of 6100 hospitalized patients in the Northeast, that older patients more likely to obtain DNR orders even after severity of illness was taken into consideration.²⁵ The use of DNR orders was also observed to be higher with age in the SUPPORT study of almost 10,000 hospitalized seriously ill elderly.^{22, 23} In this study, individuals at least eighty-five year old were twice as likely to obtain DNR status as those below seventy-five.²³ The greater use of DNR orders for the elderly has been noted in other countries as well. In several studies from the hospitals in the Netherlands, involving several hundred patients each, age and functional status were independent predictors of DNR status.^{14, 16} Several smaller studies from individual hospitals in the US also noted differences in the influence of age on the use of DNR orders.^{1, 13, 26, 27, 28} They are additionally significant in that they underscore the finding that demographic variables (such as patient location) can influence the probability of a DNR being written, as will be explained later in greater detail.

The reason for increased use of DNR orders with age has been speculated about, but no formal investigations have been done to ascertain the exact causes. Possibilities include "ageism" by physicians, and greater likelihood of physician discussions about resuscitation with the elderly.¹⁹ Interestingly, the majority of elderly prefer to be resuscitated.^{22, 29, 30, 31, 32, 33}

For many years it has been apparent that patients with certain types of illnesses, are more likely to be given DNR orders than others.^{1, 2, 4, 17, 19, 24, 25, 27, 35, 36, 37} Included in this

literature is Wenger's survey of 14,000 Medicare patients previously mentioned. Data from the SUPPORT trial of almost 7000 seriously ill hospitalized elderly patients outlined that patients with lung cancer and coma were more likely to receive DNR orders than patients with four other diagnoses.²³ Patients with congestive heart failure were least likely to receive DNR orders. In earlier studies of several hundred patients each from one or several teaching hospitals, those with a diagnosis of malignancy were more likely to be granted DNR status.^{17, 18} Several studies, including that of Wenger et. al. and a sample of more than 90,000 admissions to 30 urban hospitals noted that more severely ill individuals were more likely to use a DNR order.^{19, 38} The exact reason for variations in the use of DNR orders with diagnosis is uncertain. Physicians may have the belief that certain illnesses such as cancer, are terminal, whereas other illnesses, such as congestive failure are not, and then delay writing DNR orders to patients with these illnesses.

Even among patients with a given illness, the use of DNR orders has been shown to vary according to other demographic characteristics. Women were more commonly recipients of DNR orders than men in US surveys, including data from more than 100,000 patients.^{20, 36} Older and sicker patients were not surprisingly also more likely to be given a DNR designation.^{16, 39} Individuals of white race,^{11, 20, 36, 40, 41} patients in public hospitals,⁴² those not using Medicaid,¹⁹ and those without spouses but with surrogate caregivers also more readily received DNR orders.^{6, 10}

The frequency of DNR orders has been shown to vary by hospital and specialty of physician according to SUPPORT data.²³ DNR orders have been requested or have been considered in a variety of settings including outpatient clinics,⁴³ acute care hospital

wards,^{1, 2, 3, 4, 5, 14, 15, 16, 24, 25, 26, 44, 45, 46, 47, 48, 49, 50, 51, 52} intensive care units,^{27, 53} nursing homes,^{6, 8, 37, 54, 55} emergency rooms,⁵⁶ or during perioperative care.^{57, 58} Less than five percent individuals admitted to US hospitals, in several investigations, were admitted with a DNR order, and DNR orders were usually written shortly before death.^{1, 2} Nursing homes have great variations in their policies on DNR orders.^{6, 8, 55, 59, 60, 61} In one study, cardiopulmonary resuscitation (CPR) was never performed on residents arresting in a nursing home, regardless of whether a DNR order was written.⁶

As has been previously mentioned, the explanation for these differences in the use of DNR orders is the subject of much

speculation. Among possibilities suggested have been variations in ease of discussion of end-of-life issues by physicians of different specialties or towards certain groups of patients, or differences in resuscitation preferences by certain groups of patients.¹⁹

It is now widely recognized that the decision to be resuscitated is only a small part of a number of very important considerations that a person needs to address in the final stage of life. However, the fact that DNR orders are written less frequently for certain categories of individuals could potentially suggest that major aspects of end-of-life care are overlooked.

INFLUENCE OF DNR ORDERS ON CARE

While, theoretically, a DNR order only states that a patient not be resuscitated, there may be very important implications for the type of care an individual who receive a DNR status obtains and the cost of end-of-life medical care. The lack of a DNR designation in an elderly individual does not even necessarily mean he will receive CPR, nor does the desire of a patient or proxy for a DNR order insure that CPR will be withheld. In a survey of the end-of-life care of 2500 patients who were at least 80 years old, the SUPPORT study, nine percent of those who died without CPR had no DNR order.²² Almost forty percent of those who died without CPR or those who had a written DNR order had a previously expressed desire for CPR indicated either by the patients themselves or their surrogates.²² Additionally, eleven percent of individuals who did not want CPR received it anyway.⁶² Studies to determine whether DNR recipients received a reduced quality of care have yielded mixed results. In a study of 2500 general medical admissions, one third of all receiving DNR orders obtained less aggressive care, most of which was reduced therapeutic care.¹⁷ Several other investigations have noted physicians caring for patients with DNR orders might also withhold other treatments, such as hemodialysis or intravenous fluids.^{50, 63} In one report, the aggressiveness of care that a physician would provide to a DNR recipient depended on the physician's nationality.⁶⁴ On the other hand, some physicians feel compelled to initiate chest compression during an arrest despite a DNR order.^{65, 67}

Two investigations concluded that patients receiving DNR orders observed that individuals designated as DNR receive fewer services, including a sample of 19,000 Medicare patients.^{52, 66} This large survey also noted that DNR patients had a greater mortality than their function or morbidity would imply.⁶⁶ In a retrospective study of approximately 900

hospitalized persons from a single hospital, the use of services by DNR patients was quite variable.⁶⁷ A prospective study implementing a new end-of-life care policy demonstrated that the earlier in admission DNR orders are written, the lesser the cost of that admission.⁶⁷ However, DNR orders are usually obtained late in the course of the illness, and those delayed in receiving them stay in the hospital longer and have higher total costs than other patients.^{66, 67, 68, 69} This is by no means certain, though, as one investigation of approximately 250 terminally individuals delineated that those with admission DNR orders cost as much to take care of than those without DNR orders.⁶⁸ Thus, how DNR orders impact on the care patients receive remains open to question.

CONCLUSIONS

Although for many years there is increasing evidence that there is much variability in the application of DNR orders, and older individuals may be disproportionately more likely to receive them, little investigation has been published on the causes of the discrepancies in the utilization of DNR designation. Such investigation would be important to ascertain whether certain groups of individuals were more likely to choose resuscitation, or whether these groups were less likely to offered appropriate end-of-life care. Even if certain segments of the population were more likely to want CPR, it would be valuable to learn whether they desired it because of differences in personal beliefs about dying, or differences in perceptions about what CPR entails or how efficacious it is. The utilization of DNR status may also lead to less intense, although less costly care, but this is uncertain. More significantly, it is unclear whether a DNR order leads to care that is more appropriate for the individual at the end stage of life, given his medical condition and his preferences about how he wants to die.

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Author Information

E. Paul Cherniack, MD

Division of Geriatrics and Gerontology, University of Miami School of Medicine and the Miami VA Medical Center