CROSS-SECTIONAL STUDY

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Do-not-resuscitate (DNR) Orders' Awareness and Perception Among Physicians: a National Survey

Sarah Alahmadi[1], Mohammed Al Shahrani[1], Maan Albehair[2], Abdulrahman Alghamdi[1], Faten Alwayel[1], Alaa Turkistani[1], Abdullah Alahmadi[3], Zainab Shehab[4]

[1]Department of Emergency Medicine, King Fahad Hospital of the University. Khobar, Saudi Arabia

[2]Department of Pediatric Emergency, Maternity and Children Hospital, Khobar, Saudi Arabia

[3]Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

[4]King Fahad Military Medical Complex, Dhahran,Saudi Arabia

[5]Dammam Medical Complex, Dammam, Saudi Arabia

Corresponding author: Sarah Alahmadi, MD. King Fahad Hospital of University, Khobar, Saudi Arabia. Phone number :+966545939970. E-mail: saahmadi@iau.edu.sa. ORCID ID: http//www.orcid.org/0000-0002-0204-781X.

ABSTRACT

Background: The concept of do-not-resuscitate (DNR) orders began when medical and surgical interventions increased the possibility of resuscitation in dying patients. Healthcare providers should start to care more about the quality of life rather than quantity. The acceptance of signing DNR orders varies among physicians owing to different reasons and conceptions. **Objective:** The aim of this national survey was to evaluate the extent of physicians' knowledge and attitude towards do-not-resuscitate (DNR) orders in different hospitals and specialties in Saudi Arabia. **Methods:** A cross-sectional study was conducted in Saudi Arabia and other Arab Gulf countries between March 2019 and May 2021. **Results:** A total of 409 physicians completed the questionnaire (53.3% male, 47% of the participants were less than 30 years of age). Most participants had their residency medical training in Saudi Arabia (73.6%, n=281); 33.5% were emergency medicine (EM) physicians. Among 409 patients, 92.7% (n=379) were familiar with the DNR (do-not-resuscitate) ter. Half of the participants had never discussed a DNR status with the patient or family (n=215, 52.6%), however, only 38.4% had read the policy. A total of 275 (67.2%) participants were aware that their institute had a DNR policy, and a lack of patient/family understanding was the most common barrier for the majority to initiate DNR orders (53.9%, n=222). Most of the participants (65.8%, n=269) acknowledged a lack of training and understanding of the concepts of DNR orders. **Conclusion:** Most physicians who participated in this study were aware of the DNR order concept; however, half of them had never discussed or signed a DNR order. Patients and their families' misunderstandings were considered the main barriers. In addition, the lack of training in the concepts of DNR orders was considered a major obstacle.

Keywords: Do-not-resuscitate, CPR, palliatives care.

1. BACKGROUND

A do not resuscitate (DNR) order is written by medical doctors that prevents healthcare providers from performing cardiopulmonary resuscitation (CPR) in cases of cardiac arrest. However, the patient should still receive all other forms of treatment, such as analgesics, fluids, if necessary, proper nutrition (1). The concept of DNR begins when the patient's medical condition is considered terminal and irreversible, and any aggressive intervention such as CPR will not lead to any potential benefits. Resuscitation can improve short-term outcomes, however, long-term outcomes are not always pleasant. As patients' concerns shifted from immediate short-term results to long-term consequences, the concept of DNR arose when people started to care more about quality of life after resuscuation (2).

DNR decisions are usually made for patients with terminal illness receiving palliative care, who may be dependent on others or have no cure for their disease. These decisions are made by licensed medical doctors who are the primary treating physicians involved in patient care when indicated. These decisions may or may not be discussed with the patients themselves, as they may suffer from mental illnesses such as dementia or they are critically ill to discuss such decisions. In these cases, the DNR order may be discussed with the patient's family or substitute decisions makers (3).

The physician should have substantial training and experience in medical care that they can use to enrich such decisions. A physician's judgment must also be less clouded by emotions associated with death or losing a loved one.

Most importantly, the role of a medical professional is to determine which interventions are appropriate for given the situation (4).

DNR order concepts are widely used in healthcare systems in developed countries. In some countries in the region, such as the UAE, any doctor who fails to resuscitate a patient is liable for prosecution. However, in August 2016, a federal decree on medical liability in the Emirates was issued under which doctors would no longer be compelled to resuscitate dying patients. Despite this, there is still debate due to the sensitivity and delicacy of the topic as well as differences in ethical and cultural norms (5-7).

Although CPR is consistently performed in Saudi Arabian hospitals, few researchers have examined the topic of DNR (8-14). In Saudi Arabia, neither the patient nor his/her family take part in the decision (9). The decision is taken by "three knowledgeable and trustworthy physicians," and they must agree that the patient's condition is irreversible or terminal. This decision is in accordance with the Fatwa (a religious ruling in Islam) issued in 1988 regarding DNR (15). This Fatwa also states six conditions as to when the DNR decision can be given: a) If the patient arrives at the hospital, b) if the panel of physicians considers the disease as untreatable and death is inevitable, c) if the condition of the patient makes him/her unsuitable for resuscitation, d) if the patient suffers from severe heart or lung disease or repeated cardiac arrests, e)if the patient is in a vegetative state, and f) if resuscitation is considered useless (11).

2. OBJECTIVE

The aim of this survey was to evaluate the extent of physicians' knowledge and attitude towards do-not-resuscitate (DNR) orders in different hospitals and specialties in Saudi Arabia.

3. MATERIAL AND METHODS

This cross-sectional study was conducted between March 2019 and May 2021. A questionnaire (electronic and manual) was adopted and modified by the investigators (a survey regarding do-not-resuscitate among intensive care unit/ER doctors in Saudi Arabia by Gouda et al.), and it went for reliability testing by conducting a pilot and two focused group discussions, and was subsequently sent to subject experts for content validity. The protocol and study were approved by the IRB committee of Imam Abdulrahman bin Faisal University (No 2019-01_006).

Participants

Physicians from different specialties were briefed about the objectives and aim of the study before filling out the questionnaire; the study title and purpose were printed on the questionnaire and all the participants have provided their informed consent to participate in the study. It was in English and designed to meet the objectives of our study.

The data obtained from the participants were transferred to an Excel spreadsheet and analyzed using SPSS and Microsoft Excel.

4. RESULTS

A total of 409 physicians completed the questionnaire (53.3% male). The study represented various age groups, however, the majority were less than 30 years old. More than half of the participants were Saudis (63.5%, n=260); the majority (85.5%) considered themselves religious, whereas 11.2% did not. Half of the participants were residents under training (49.9%), and 43% had 2 to 5 years of medical experience, where only 7.6% had more than 20 years of experience, and approximately half were working in a tertiary hospital (57.9%). Most of the participants had their residency medical training in Saudi Arabia (73.6%, n=281), 33.5% were emergency medicine (EM) physicians, and the remaining were from different medical specialties, including 15.2% internal medicine, 6% surgery, 9.7% pediatrics, 12% ophthalmology, and others (intensive care unit [ICU], ear, nose, and throat [ENT], and anesthesia). Among 409 participants, 92.7% (n=379) were familiar with the DNR (do-not- resuscitate) term, and 7.3 % were not (Table 1).

Variables	n (%)
Gender	
Male	218(53.3)
Female	191(46.7)
Age in years.	
< 30	193(47.2)
30-45	159(38.9)
45-65	52(12.7)
>=66	5(1.2)
Nationality	
Saudi	261
Non-Saudi	148
Do you consider yourself Religious?	
Religious	351(85.8)
Very Religious	12(2.9)
Non- Religious	46(11.2)
Hospital Type	
Primary	71(17.4)
Secondary	101(24.7)
Tertiary	237(57.9)
Job title	
Consultant	66(16.1)
Fellow	1(0.2)
General practitioner	63(15.3)
Interns	3(0.7)
Resident	204(49.9)
Specialist	72(17.6)
Year of Experience	
0-1	90(22.0)
2-5	176(43.0)
6-10	69(16.9)
11-20	39(9.5)
>20	31(7.6)
Are you familiar with DNR?	
Yes	379(92.7)
No	30(7.3)

Table 1. Demographic characteristics of the sample (n=409)

Questions	n (%)
How many times have you discussed a DNR status with a patient / family?	
Less than 5 times	116(28.4)
5- 10	40(9.8)
>10	37(9.0)
Never	215(52.6)
Do you have DNR (NO CODE) policy in your hospital?	
Yes	275(67.2)
No	67(16.4)
I don't know	67(16.4)
Did you read the DNR policy?	
Yes	157(38.4)
No	196(47.9)
How many physicians are needed to complete a DNR order?	
1	25(6.1)
2	153(37.4)
3	219(53.5)
4	12(2.9)
In your opinion, how long should be the DNR validity duration?	
3 months	160(39.1)
6 months	92(22.5)
1 year	55(13.4)
Permanent	102(24.9)
Is it a MUST that the patient or his/her family agrees on DNR order?	
Yes	202(49.4)
No	207(50.6)
Do you discuss DNR order with the patient & family?	
Yes	288(70.4)
No	121(29.6)
Do you have enough training and understanding to initiate DNR order?	
Yes	140(34.2)
No	269(65.8)
Do you have ethical committee that would help in case of disagreement?	
Yes	145(35.5)
No	71(17.4)
Uncertain	193(47.2)
Do you think educational programs could change your practices for DNR?	
Yes	317(77.5)
No	27(6.6)
Uncertain	65(15.9)

Table 2. Opinions of the examined participants in the study

Half of the participants had never discussed the DNR status with a patient/family (n=215, 52.6%), however only 38.4% had read the policy. A total of 275 (67.2%) participants were aware that their institute had a DNR policy. 219 participants (53.5%) agreed that three physicians are needed to complete the DNR order. More than half of the participants believed that DNR orders should be initiated by the primary physician (68.8%, n= 263), 56% by ICU physicians, and 11.3% did not know (Table 2).

According to our hospital system, the validity of a DNR order should stand for six months; however, only 92 participants correctly identified the answer. Approximately half of the participants (49.4%, n=202) believed it a must that the patient/family agreed to the DNR order, and 70.4% answered that they should discuss the DNR order with the patient and family (Table 2).

Lack of patient/family understanding was the most common barrier for the majority to initiate DNR orders (53.9%, n=222). Most of the participants (65.8%, n=269) acknowledged the lack of training and understanding of DNR orders, and 47.2% were uncertain about having an ethical committee that would help in case of disagreement. 77.5% (n=317) of participants believed that educational programs could change their practice of DNR orders (Table 2).

5. DISCUSSION

This study was conducted by a variety of specialists. From different centers in Saudi Arabia, we found that most of the surveyed physicians were aware of the existence of DNR orders and their policies in their hospitals. However, family understanding and lack of sufficient training were considered major obstacles to not signing the DNR orders for eligible patients.

Several studies have been published on DNR in Saudi Arabia. A 1995 study explored this issue among 100 physicians in Riyadh (central province) dealing with adult patients. Other studies targeted interns and/or residents in internal medicine in western province, intensivists in western province, DNR decisions in a pediatric intensive-care unit (PICU) in Riyadh, and community views on DNR (8-13).

Our study targeted a wide spectrum of specialties and included a larger sample from different hospitals and regions. Interestingly, most of the participants were familiar with DNR orders in our study, however, only around half had never discussed a DNR status with a patient or family; this may be attributed to the fact that half of our respondents were residents under training.

Despite the existence of local policies and guidelines, the results of this study demonstrated that most of the physicians were aware of the existence of DNR policy; one-third of the physicians did not read the comprehensive policy, raising concerns about the efficacy of DNR practice in our institute.

Our findings were consistent with those of other studies from Saudi Arabia and Portugal, indicating that a structured residency program curriculum is needed to train resident with skills in end-of-life care, and that the DNR concept should be included in any training program (8-10, 16, 17).

In our study, half of the participating physicians in different specialties believed that the patient or family must agree with a DNR order, which is similar to a previous study conducted among internal medicine physicians. In another study, a much higher percentage (70%) felt that the DNR order was a physician's decision.

Contrarily, a study conducted on interns and residents of internal medicine in western Saudi Arabia showed that the majority (67% of interns and 55% of residents) believed that the policies should include the patient as a decision-maker. Most participants in our study (70.4%) felt that the patients and families had the right to know about the DNR status, a result similar to a previous study (8, 9).

Approximately two-thirds of the participants in our study believed that the DNR order should be initiated by the primary physician (68.2%). Around half (55.2%) believed that the ICU physicians should be a part of the decision, a finding almost similar to a previous study done in Saudi Arabia, which showed that 44% of the physicians thought that an intensivist must participate in the decision, and 58% agreed that the treating physician must be a part of the decision-making team, with 36% stating that any competent physician can participate (18).

According to the participating physicians in this study, the significant barriers and obstacles for the initiation and completion of DNR orders were patients' and families' lack of education and understanding, as well as physicians' inadequate training. These findings are similar to those of two other studies from Saudi Arabia (19, 20).

Several medical organizations have recently begun to reconsider their end-of-life care guidelines.

In April 2003, the International Consensus Conference on End-of-Life Care in the ICU recommended that decision-making regarding end-of-life care should be shared between the physician and the patient or his/her family ("shared decision-making" paradigm). Later, in 2008, the American College of Critical Care Medicine modified their recommendations for end-of-life care, emphasizing that there is growing agreement among critical care professionals on main principles, such as shared decision-making and the significance of caring for patients' families (21-23).

The shared decision–making brings balance to the process. Physicians often fail to accurately predict patient desires regarding end-of-life treatment and may be unaware of patients' values or religious beliefs, which may be important in determining the appropriate aggressiveness of care (21).

Strengths

The study was conducted in multicenter and in several countries in the Gulf region, with a good sample size and the largest sample size compared to previous similar studies. This gives the study more diversity for the result and more exposure to participants with different backgrounds to provide the current general picture of the perception.

Limitations of the study

There were some limitations, as the study took more than the expected time due to the COVID-19 pandemic and the conversion from manual to electronic version as a protective measure against COVID-19. Some limitations occurred due to the electronic version in some parts where it was Difficult to handle such as the current country of practice on the electronic version. Additionally, we could not calculate the exact response rates.

6. CONCLUSION

Most physicians who participated in this study were aware of the DNR order concept; however, half of them had never discussed or signed a DNR order. Patients and their families' misunderstandings were considered the main barriers. In addition, the lack of training in such concepts is considered a major obstacle.

Recommendations

- DNR is an essential component of medical practice because it provides better care for terminally ill patients, and better utilization of limited resources.
- Physicians should have access to DNR-related medical education.
- Several variables could impede the implementation of DNR, the major one being a lack of understanding.
- Awareness of the policy, training of junior physicians, national public campaigns, use of the ethics committee, and setting post-DNR care goals are all essential aspects for improvement.
- Instead of using a variety of aggressive management strategies, it is hoped that this study will motivate physicians to consider conservatism and patient involvement.

This study will help enrich the current literature on the topic of DNR in Saudi Arabia, and will help improve medical practice and provide better management to patients and their families.

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- **Conflict of interest:** None declared.
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