

Opinions of Chest Physicians About the Do-Not-Resuscitate (DNR) Orders: Respect for Patient's Autonomy or Medical Futility?

Göğüs Hastalıkları Hekimlerinin "Resüsite Etmeyin-Do Not Resuscitate (DNR)" Talimatı Hakkındaki Görüşleri: Hasta Özerkliğine Saygı mı Yoksa Tıbbi Yararsızlık mı?

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Abstract

Objective: In this study, we aimed to investigate physicians' knowledge, attitude, and behavior related to cardiopulmonary resuscitation (CPR) and the do-not-resuscitate (DNR) order, and the factors associated with decisions to abide by patients' DNR orders were also evaluated.

Material and Methods: An e-survey designed by the research team, based on the European Resuscitation Council Guidelines (2015), American Heart Association Guidelines (2015) for resuscitation, and the relevant literature and legal regulations, was administered to resident and specialist doctors in chest diseases. Descriptive data of the number, percentage, and the mean and standard deviation are presented. The chi-squared test was used in the analysis of categorical data. Statistical significance was accepted as $p < 0.05$.

Results: The e-survey questions were answered by 376 physicians voluntarily. Of responders, 59.6% ($n=224$) were female, and the mean age was 40.2 ± 9.0 years. Approximately 57% of physicians reported that "if a doctor has decided medical futility, not performing CPR does not constitute an ethical debate." Responses indicated that 47.7% of physicians would abide by the DNR order. A statistically significant difference was identified between "physicians' decision not to perform CPR" and "abiding by the patient's DNR orders" ($p < 0.05$). There was also a statistically significant difference between "perceiving the DNR orders as euthanasia and thinking abiding by this decision was a crime" and "abiding by patient's DNR orders" ($p < 0.05$).

Conclusion: In this study, we observed that two main factors are foreground in the implementation of the DNR order. The first of these is the physician's opinion about medical futility of CPR, and the other is the lack of specific laws regarding DNR in Turkey. Defining specific legal regulations related to end-of-life decisions like DNR will aid in ensuring patient autonomy.

Keywords: Resuscitation orders, medical futility, decision making, patient

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Öz

Amaç: Bu çalışmada, hekimlerin kardiyopulmoner resüstasyon (KPR) ve resüsite etmeyin/do-not resuscitate (DNR) hakkındaki bilgi, tutum ve davranışlarının ve DNR talimatını uygulama kararları ile ilişkili faktörlerin incelenmesi amaçlandı.

Gereç ve Yöntemler: European Resuscitation Council (ERC) 2015 ve American Heart Association (AHA) 2015 kılavuzları, konuyla ilgili literatür ve yasal düzenlemeler baz alınarak, araştırma ekibi tarafından dizayn edilen bir e-anket, göğüs hastalıkları asistan ve uzman doktorlarına uygulandı. Tanımlayıcı veriler sayı, yüzde, ortalama, standart sapma kullanılarak sunuldu. Kategorik verilerin analizi için ki-kare testi yapıldı. İstatistiksel anlamlılık için $p < 0,05$ kabul edildi.

Bulgular: Anketi 376 gönüllü hekim yanıtladı. Hekimlerin %59,6'sı ($n=224$) kadın ve ortalama yaş $40,2 \pm 9,0$ yılı. Hekimlerin %57,2'si, "eğer doktor KPR'nin tıbbi yararsızlık kararını vermişse, KPR uygulamamak etik tartışma oluşturmaz" görüşündeydi. Hekimlerin %47,7'si, DNR talimatını uygulamam kararı ile "hastanın DNR talimatını uygulaması" durumları arasında istatistiksel anlamlı fark saptandı ($p < 0,05$). "DNR talimatının ötanazi olarak algılanması ve bu talimatı uygulamanın suç olduğunun düşünülmesi" ile "hastanın DNR talimatının uygulanması" durumları arasında istatistiksel anlamlı fark saptandı ($p < 0,05$).

Sonuç: Bu çalışmada, DNR talimatının uygulanmasında temel olarak iki faktörün etkili olduğunu gözlemledik. Bunlardan ilki, hekimin KPR ile ilgili kendi tıbbi yararsızlık kararı, diğeri ise Türkiye'de DNR ile ilgili özel yasa bulunmamasıdır. DNR gibi yaşamın sonu kararlarıyla ilgili spesifik yasal düzenlemeler yapılması, hasta özerkliğinin sağlanmasına yardımcı olabilir.

Anahtar kelimeler: DNR, KPR, tıbbi yararsızlık, hasta özerkliği

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Ethics Committee Approval: The authors declared that the research was conducted according to the principles of the World Medical Association Declaration of Helsinki "Ethical Principles for Medical Research Involving Human Subjects", (amended in October 2013).

Informed Consent: It was accepted that the 376 participating physicians who have completed the e-survey have given informed consent.

Peer-review: Externally peer-reviewed.

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Etik Komite Onayı: Yazarlar çalışmanın World Medical Association Declaration of Helsinki "Ethical Principles for Medical Research Involving Human Subjects", (amended in October 2013) prensiplerine uygun olarak yapıldığını beyan etmişlerdir.

Hasta Onamı: E-anketi tamamlayan 376 katılımcı hekimin, aydınlatılmış onam verdiği kabul edildi.

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Teşekkür: Yazarlar olarak, anket sorularını cevaplayarak görüşlerini paylaşan değerli katılımcı hekimlere, araştırmanın uygulanışı sırasında verdikleri destek için Türkiye Solunum Araştırmaları Derneği'ne ve istatistiksel analize katkılarından dolayı Dr. Buse Yüksel ve Çanakkale Onsekiz Mart Üniversitesi Halk Sağlığı anabilim dalına, teşekkür ve saygılarımızı sunarız.

Introduction

When cardiopulmonary arrest (CPA) linked to a sudden unexpected reason or to a known disease develops, cardiopulmonary resuscitation (CPR) is performed with the aim of returning the individual to life (1, 2). This revival process has a low chance of success and is a very invasive intervention (1-3). In Europe, 0.5-1 person per 1000 suffers sudden cardiac death every year (2). After the revival is applied to cases who develop arrest outside the hospital, less than 1 in 10 (7.9%) of individuals are discharged from hospital (2). Additionally, CPR is controversial for fatal disease cases, especially when there is multiple organ failure and malignancy that are monitored in intensive care units. Developing treatment choices lengthens these patients' stay in the intensive care and causes ethical debates in this regard (4).

In the absence of objective signs of irreversible death and without known previous rejection of resuscitation, performing full resuscitation is recommended (1); however, if the chance of good quality survival of the patient is low, then futile resuscitation is mentioned (2). The benefits of CPR vary and are linked to factors such as the cause of arrest, the time of initiation of resuscitation, CPR technique, and patient characteristics (5). Although CPR may be successful under certain conditions, it is a very traumatic application for patient and relatives. Complications such as rib fractures that develop during resuscitation, crushing of the lungs and other internal organs, and hypoxic brain damage are problems for many cases (6). The success rate for these types of interventions in the United States has a very wide interval of 0%-40% (6-8). Due to low success rates and the application of CPR to all cases, including patients with very little life expectancy, a variety of debates have begun, and do-not-resuscitate (DNR) orders have come to the agenda (8-10). DNR orders lead to different applications in different countries in the world, and all aspects are debated (9). The principles that should be considered while fulfilling this order are proposed as respecting patient autonomy, not causing harm, providing benefit, and distributing justice and equality (9). Additionally, the DNR order, included within the scope of a "living will" or "previously expressed wish" expanding to the limits of the principle of respect for autonomy, is not sufficiently known to both patients and doctors (10). These applications require assessment from medical, ethical, and legal aspects, and consensus must be achieved. Additionally, many authors have stated that legal regulations related to this topic are not known by physicians in Turkey (11). In this study, a survey study was

performed with the aim of researching the knowledge, attitude, and behavior of physicians related to CPR and DNR, and factors associated with abiding by the patient's DNR order were also evaluated.

Material and Methods

Research region and population

This cross-sectional type research included chest diseases specialists and residents who were members of a national medical society. At the time of the research, the number of doctors in the society was 3700. The survey was sent to 2300 members in the electronic environment via e-mail. The answers given by 376 doctors participating in the survey were assessed.

Data-collection tool

Data were obtained using a 23-question survey form designed by the research team. The first section of the survey contained 11 questions related to sociodemographic descriptive characteristics. The second section contained 12 questions created based on the European Resuscitation Council (2015) and the American Heart Association (2015) guidelines, and the relevant literature and legal regulations. This section included questions related to the knowledge, attitude, and behavior of physicians about CPR and DNR.

Application of the research

In this study, patients' data were not used. This research used the electronic survey technique. Permission was granted by the relevant society to administer the survey. E-surveys were sent to the e-mail addresses included in the contact details of physicians who were members of the society. Surveys were answered by volunteer participating physicians. At the beginning of the survey, the necessary explanations of privacy and the research aims were given. It was accepted that the participating physicians who have completed the e-survey have given informed consent. Data from the completed surveys were transferred to a statistical analysis program by a researcher on the research team who was not a chest diseases expert. This study was conducted in accordance with the Helsinki Declaration.

Statistical Analysis

Data were analyzed using the Statistical Package for Social Sciences version 20.0 (IBM SPSS Corp.; Armonk, NY, USA) program. The presentation of descriptive data used the number, percentage, and the mean and standard deviation. Normal distribution of data was assessed with the

Kolmogorov-Smirnov test. The chi-squared test was used to compare categorical data. Statistical significance was accepted as $p < 0.05$.

Results

In this research, a total of 376 doctors participated. Of all the participants, 59.6% (n=224) were female, and the mean age was 40.2 ± 9.0 years. In the research group, 30.3% (n=113) had lost at least one parent, and 63.0% had a first-degree relative with a chronic disease. The majority of participants (83.1%) were specialist doctors, with 88.6% (n=235) reporting that they were responsible for caring for more than 21 patients per month. Varying number of clinicians answering the survey questions monitored intensive care patients, and nearly all (98.7%; n=312) had performed CPR at least once during their lives. In the research group, only 40.7% (n=153) of doctors replied to the question about abiding by the DNR order. Among those who responded, 47.7% (n=73) said that they would abide by the patient's DNR orders, while 52.3% (n=80) responded that they would not. The data related to the distribution of clinicians' sociodemographic characteristics, employment characteristics, and abiding by patient's DNR orders is shown in Table 1.

There was no statistically significant difference identified between the descriptive variables of sociodemographic and employment characteristics of doctors and abiding by patient's DNR orders (Table 2). The mean

Table 1. Distribution of demographic characteristics, employment characteristics, and application of do not resuscitate by clinicians

Variables	
Age, years, mean \pm SD	40.2 \pm 9.0
Female gender, n (%)	224 (59.6)
Married, n (%)	296 (78.7)
Participant has children	277 (74.5)
At least one parent dead, n (%)	113 (30.3)
Chronic disease present in first-degree relatives	235 (63.0)
Academic degree	
Specialist, n (%)	310 (83.1)
Resident, n (%)	63 (16.9)
Patients seen monthly	
1-10, n (%)	16 (4.3)
11-20, n (%)	26 (7.1)
>20, n (%)	326 (88.6)
Patient seen/ followed monthly in ICU*	
1-10, n (%)	243 (68.9)
11-20, n (%)	39 (11.0)
>20, n (%)	71 (20.1)
Number of CPR applications*	
Never performed, n (%)	4 (1.3)
1-20, n (%)	64 (20.2)
>21, n (%)	248 (78.5)
Would abide by patient DNR orders *n (%)	73 (47.7)

*n: number; (%): column percentage; SD: standard deviation; ICU: intensive care unit; CPR: cardiopulmonary resuscitation; DNR: do not resuscitate. Due to unanswered or multiple-answer questions, each variable may not have n=376

age of those who would abide by the DNR order was 39.5 ± 8.7 years, with the mean age of those who would not abide 41.8 ± 8.8 years, and no statistically significant difference was identified between the two groups in terms of age ($p > 0.05$). While 66.0% (n=31) of participants who had lost at least one parent stated they would not abide by the DNR order, 46.2% (n=49) of those with both parents living stated they would not abide by the order, and this difference was statistically significant.

In this study, 66.9% of physicians (n=208) reported there were times when the CPA developed and when they did not perform CPR. The proportion of doctors who had previously spoken to fatally ill patients or

Table 2. Correlation of physicians' demographic and employment characteristics with DNR behavior

Variables	Abiding by patients' DNR orders*		p
	Would abide n (%)*	Would not abide n (%)*	
Gender			0.798
Female	46 (46.9)	52 (53.1)	
Male	27 (49.1)	28 (50.9)	
Marital status			0.601
Married	61 (50.0)	61 (50.0)	
Single	12 (44.4)	15 (55.6)	
Number of children			0.567
None	14 (42.4)	19 (57.6)	
>1	59 (50.0)	59 (50.0)	
Parental survival status			0.038
At least one dead	16 (34.0)	31 (66.0)	
Both alive	57 (53.8)	49 (46.2)	
Chronic disease in first-degree relatives			0.935
Present	47 (48.0)	51 (52.0)	
Absent	26 (47.3)	29 (52.7)	
Academic degree			0.802
Specialist	60 (46.9)	68 (53.1)	
Resident	13 (52.0)	12 (48.0)	
The number of patients followed up/month			0.092
1-10	1 (14.3)	6 (85.7)	
11-20	3 (33.3)	6 (66.7)	
>21	69 (50.7)	67 (49.3)	
The number of patients followed up in ICU/ month*			0.504
1-10	43 (43.9)	55 (56.1)	
11-20	10 (52.6)	9 (47.4)	
>21	18 (54.5)	15 (45.5)	
The number of CPR applications*			0.355
Never performed	0 (0.0)	1 (100.0)	
1-20	15 (41.7)	21 (58.3)	
>21	58 (50.0)	58 (50.0)	

*n: number; (%): row percentage; p: Chi-square test; ICU: intensive care unit; CPR: cardiopulmonary resuscitation; DNR: do not resuscitate

Table 3. Correlation of doctors' knowledge and attitude with their behaviors related to patients' DNR orders

Variables	Abiding by patients' DNR orders*		p
	Would abide n (%)*	Would not abide n (%)*	
When CPA developed, have you ever not performed CPR?*			0.001
Yes	58 (57.4)	43 (42.6)	
No	14 (27.5)	37 (72.5)	
Is DNR order euthanasia?*			0.001
Yes	7 (20.6)	27 (79.4)	
No	65 (55.6)	52 (44.4)	
Does abiding by a patient's DNR order indicate a crime according to Turkish laws?*			0.0001
Yes	38 (35.8)	68 (64.2)	
No	31 (81.6)	7 (18.4)	
Are there any legal regulations about DNR orders in Turkey?*			0.177
Yes	4 (66.7)	2 (33.3)	
No	17 (37.0)	29 (63.0)	
Don't know	51 (51.0)	49 (49.0)	
Have you had a patient with a DNR order?*			0.151
Yes	25 (58.1)	18 (41.9)	
No	48 (43.6)	62 (56.4)	
Do you discuss end of life, CPR and DNR with fatally ill patients?*			0.163
Yes	11 (68.8)	5 (31.2)	
No	37 (43.0)	49 (57.0)	
Sometimes	25 (49.0)	26 (51.0)	
If you were fatally ill, would you give a DNR order?*			0.013
Yes	42 (58.3)	30 (41.7)	
No	3 (20.0)	12 (80.0)	
Don't know	27 (42.2)	37 (57.8)	
"If there is no indication, I would not perform resuscitation".			0.791
Yes	22 (46.8)	25 (53.2)	
No	14 (43.8)	18 (56.2)	
Undecided	37 (50.7)	36 (49.3)	

*n: number; (%): row percentage; p: Chi-squared test; CPR: cardiopulmonary resuscitation; DNR: Do Not Resuscitate; CPA: cardiopulmonary arrest

patient relatives about the CPR and DNR topics was 11.9% (n=37), with the percentage stating that they sometimes spoke about these topics at 32.4% (n=101). There was a statistically significant association identified between physicians' "decision not to perform CPR," "perceiving DNR

Table 4. Distribution of answers to the question of whether doctors would use cardiopulmonary resuscitation and abide by do not resuscitate orders in situations where cardiopulmonary resuscitation is futile

Questions	n (%)*
In which situations, performing CPR is futile?*	
Development of death pallor or rigor mortis	135 (35.9)
More than 2 hours submerged	51 (13.6)
Cardiac injury and severe crushing injuries	27 (7.2)
Late stage malignancy	130 (34.6)
Stage 4 COPD and respiratory failure *	26 (6.9)
Bilateral massive emboli	9 (2.4)
Sepsis	6 (1.6)
Advanced age	16 (4.3)
In which situations does performing CPR not form an ethical debate?*	
If the patient has a DNR order.*	52 (25.9)
If there are written orders from a legal representative.	34 (16.9)
If the doctor has decided about medical futility of cardiopulmonary resuscitation.	115 (57.2)
If you would never abide by a DNR order, why?*	
I perform CPR on every patient to avoid committing a legal crime.*	61 (48.4)
I would perform it to avoid reactions from patient relatives.	17 (13.5)
I perform it because it is difficult to identify patients for whom it is medically futile.	11 (8.7)
I do not think it's ethically correct.	37 (29.4)

*n, number; (%), column percentage; CPR, cardiopulmonary resuscitation; DNR, do not resuscitate; COPD, chronic obstructive pulmonary disease. Due to unanswered or multiple-answer questions, not every variable has n=376

orders as euthanasia," and "thinking that abiding by DNR orders was a crime" with "abiding by patient's DNR orders." There was also a significant association between "giving a DNR order if physicians themselves were fatally ill" with "abiding by patient's DNR orders" (Table 3).

Table 4 shows the distribution of answers given by physicians to questions about situations where CPR is futile and not abiding by CPR and DNR orders. Accordingly, 35.9% of physicians (n=135) reported that the CPR administration was futile if death pallor or rigor mortis developed, with 34.6% (n=130) stating that it was futile if late-stage malignancy was identified. Of participants, 57.2% (n=115) agreed with the opinion that "if a doctor has decided medical futility exists, not performing CPR does not form an ethical debate" (Table 4).

Discussion

It is known that physicians do not perform CPR when the cardiac arrest develops in situations such as advanced malignancy without long life expectancy. In previous years, the doctor's medical futility decision was more effective, with a current change toward a patient-focused approach. In this study, there was a statistically significant correlation identified between physicians' decision not to perform CPR when car-

diac arrest develops and abiding by a patient's DNR decision. Additionally, more than half of the doctors (57.2%) reported that if a doctor had decided that CPR was medically futile, no ethical debate was present. This result leads to the consideration that the physician's decision about medical futility is an important factor that may affect abiding by DNR orders. Similar to other studies in the literature, 66.9% of physicians participating in the survey reported there were some situations when they did not perform CPR on patients (12).

Publications dealing with ethical approaches to the end of life and revival include the do-no-harm and justice principles, in addition to patient autonomy and medical futility (1-5, 8-11). Additionally, if a patient gives a DNR order, it is reported that there are times when physicians do not abide by this order (4, 7). Survey results of physicians in Turkey and other countries provide different results about this topic (4, 7, 12-14). Of doctors participating in our study, 52.3% reported they would not abide by a patient's DNR order. A significant majority of physicians in the study by Barnett et al. did not abide by the DNR order, and it was understood that rather than patient autonomy, the principle of medical futility was the concept primarily noted. A trend determination study in 2004 in European countries (13) emphasized that physicians' decisions about abiding by the DNR order was affected by cultural, social, and legal situations. Baskett et al. (13) proposed that the results from Turkey were similar to the results from other Islamic countries. It was reported that whereas emotional decisions were dominant in the Latin European countries, cold-hearted decisions were dominant in the Northern European countries.

Mockford et al. (6), in a systematic review assessing 44 studies in 2015, reported that the factors most affecting the DNR application were patient's age, accompanying diseases, and life expectancy after revival. Additionally, cultural factors such as race, ethnicity, and the patient's marital status were stated to affect the DNR application decision (6). There are very large differences between countries in terms of legal regulations related to the DNR order (9). In our study, "not abiding by patient's DNR orders" was observed to be associated with "perceiving DNR orders as euthanasia" and "thinking that abiding by DNR orders is a crime." According to the answers provided, it was understood that doctors who consider DNR equivalent to euthanasia and who think that they could be charged for a crime would not abide by DNR orders. Additionally, in our research, 48.4% of physicians stated they would never abide by a DNR order under any circumstances due to not wanting to commit a crime, with 13.5% stating that they would not abide by a DNR order to avoid reactions from patient relatives. The study by Barnett et al. emphasized that physicians not abiding by DNR orders wanted to avoid reactions of patient relatives or social pressure, especially (12).

Only a small proportion of physicians participating in the survey spoke to patients or relatives about end of life, CPR, and DNR. Additionally, nearly two-thirds of physicians reported they did not begin the CPR administration after deciding on medical futility; in other words, the CPR indications were not present. According to our study results, another factor associated with fulfilling patient's DNR orders is whether doctors would give a DNR order if they were fatally ill. Physicians thinking about giving a DNR order if they had a disease with low life expectancy looked positively on patient's DNR orders. This result leads to the consideration that physicians have a more paternalistic approach rather than considering patient autonomy. As emphasized previously, the majority of physicians fulfilled DNR orders in the case of medical

futility, but they did not expend much effort to share this situation with patients and relatives or to receive their permission. According to a study by Hildén et al. (15), Finnish doctors displayed a respectful attitude to patient autonomy discussing end-of-life decisions with patients.

Physicians are trained to take actions related to sustaining human life. As a result, it may not appear rational to talk about the end of life and linked procedures most of the time (15). However, rights and duties continue at the end of life, and patients have the right to receive information about these topics (11).

In Turkey, there is no special law about "living wills" encompassing end-of-life decisions such as euthanasia, CPR, and/or DNR (7, 8, 11, 16, 17). However, article 9 of the International Convention on Human Rights and Biomedicine and article 24 of the National Patient Rights Regulation state that "for patients unable to express their wishes during medical intervention, previously expressed wishes related to medical intervention shall be considered" (18, 19). The 13th article of the National Patient Rights Regulation states that "euthanasia is forbidden" in Turkey (19). When examined from the physician's viewpoint, the patient's DNR order can be perceived as euthanasia (16, 20). In fact, although the Convention on Human Rights and Biomedicine and Patient Rights Regulations do not specifically mention "DNR orders," the patient's DNR order may be valid within the scope of "previously expressed wishes" (18, 19). In medical applications, mainly situations such as patient capacity, verbal or written DNR, the validity of DNR tattoos in unconscious patients, and applications of a DNR order in pediatric patients create problems (10, 16). It can be appropriate to talk about the topics such as CPR and DNR orders with patients suffering from a fatal illness who wish to receive information about chronic disease or their own health status and to obtain a written informed consent of rejection of CPR. For patients without a DNR order, the doctor's decision about CPR indications is not being present; in other words, the decision of medical futility will be sufficient for not performing CPR (2).

This study is the first study about the DNR among chest diseases specialists in Turkey. The low response rate to the survey and low percentages responding to some questions make it appear impossible to generalize these research results, but the results identified in the study may be road markers to determine the factors limiting applications of DNR orders. Additionally, this study revealed that, as in some countries, the topics such as the necessity for basic laws and their content dealing with previously expressed wishes/living wills should be debated within a multidisciplinary approach (14, 17, 21).

Conclusion

It is important that the decision of medical futility is made by experienced and well-trained physicians. Additionally, the definition of medical futility should include topics such as CPR indications, speaking with the patient, sharing sufficient information, and documenting the decision. With this in view, it is recommended that hospital ethics committees should be created (4, 7, 22, 23). It is necessary that physicians know the legal regulations related to the topic and that new legal regulations be made if required. Additionally, research in different specialization branches to determine the factors limiting application of patient's DNR orders will ensure the results of our study can be debated at a broader scale and contribute to creating awareness when it comes to this topic.

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