Knowledge, Attitude And Practice (KAP) Of General Population About 'Do Not Resuscitate' (DNR) In Aseer Region: A Single Center Cohort Study.

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ABSTRACT

Background:'Do not resuscitate (DNR) order' is a decision taken by the patient, authorized person (s)or competent healthcare professionals in the end stages of patient's life regarding not to perform CPR on a patient during cardiac arrest or pulmonary arrest (cardio-respiratory arrest)Aim:To access the knowledge, attitude and practice of general public residing in Aseer, Saudi Arabiaabout 'DNR'in order to find out the barriers and obstacles in addressing DNR status of the patients.Methodology:Cross-sectional, KAP questionnaire based survey was conducted intertiary health care center of King Khalid University and associated hospital, Saudi Arabia. The structured questionnaire consisted of total 15 questions related to 'DNR orders' and 05 questions regarding general demographic data. Thensoft copy of 'DNR survey questionnaire form' was send randomly to 3324 subjects (both male and female) by various social media applications thatincluded Google survey link with questionnaire. After the completion of study, the data was collected, tabulated and subjected to descriptive analysis using IBM SPSS version 20.0 software. Results:Overall response rateof 98.10% was noted after distributing 3324'DNR survey questionnaire form' withmaximum respondents' belong to 21-30 year age group. 62.38% of participants had never heard about DNR.63.84% respondents' are of opinion that age is not the only criteria for DNR.34.40% were not aware of the indications of DNR. Most of the respondents' believed that DNR decision should be taken by medical team from hospital side that too after discussion with patient. Conclusion:low education level regarding medical care at the end-of-life, lack of understanding and inadequate training among general public were the main barriers and obstacles for initiation and completion of DNR orders in Aseer, Saudi Arabia.

Key words: Cardiopulmonary Resuscitation (CPR), DNR survey questionnaire, KAP study, healthcare professionals, social media applications.

INTRODUCTION

Medical care at the end-of-life can be an emotionally and economically demanding experience. According to Black's Law Dictionary Death is defined as 'an irreversible cessation of the vital functions, signs, blood circulation and pulsation**.** [1] It means that if the patient stops breathing or his/her heart stops beating in a health care center or hospital, it is generally suggested that the best moral approach is to do Cardiopulmonary Resuscitation (CPR). [2] The CPR is an emergency mandatory procedure which is done inall hospitalized patients with cardiac arrest in efforts to maintain their life, rebuild health and prevent disability. [3]Kouwenhoven in 1960first of all introduced

CPR which was initially called as closed chest cardiac massage. [4]Sometimes, it is advised by the healthcare professional/s or is anticipated that patient is likely to have a poor outcome and may not survive with CPR or survive with poor function and quality of life; a Do-Not-Resuscitate (DNR) order can then be made. A DNR order is 'a legal document made prior to occurrence of cardiac or respiratory (cardiopulmonary) arrest, with the consent of patient, or if it's not possible, proxy consent of next of kin (family members or relative) or authorized person where healthcare professionals provide requisite not to perform CPR on a patient during cardiac arrest orpulmonary arrest (cardio-respiratory arrest)'.[5, 6]The first DNR order was published as a policy in 1976 when the case of Karen Quinlan motivated California to enact the natural death act by allowing withdrawal of life-sustaining support. [7]According to the Medical Council of CPR, CPR must start within 60 seconds if no DNR decision is in place, [8] therefore, it is important that aDNR-decision is thoroughly documented, so that the team members know whether they should start CPR or not.Following are the main reasons for opting DNR order: 1. Long-term illness; 2. Prolonged pain; 3. cerebrovascular disorders with severe stroke;4. Elderly;5. terminally ill; 5.Dementia; 6. Alzheimer's Disease.
DNR decisions should be a part of the treatment approach to particular case, and taking such a decision does not prevent continued appropriate treatment and care, for instance rehabilitation in a severely incapacitated stroke patient, or even for a malignant disorder. In general, an agreement to CPR is integral to a decision to transfer a patient to an intensive treatment unit (ITU) but this should always be confirmed for the individual patient by the physician before or at the time of the transfer.[9]The decision-making process of DNRdiffers in various countries. [10] This could be due to difference of opinion in belief, acceptance, acknowledgment and approval with regards to performance, morality and legality observed in different societies, cultures, ethnicities and religions. [11]

To effectively use and prevent misuse of DNR orders, General public must be educated about DNR terminology. With this background, the present survey was conductedin an attempt to access the knowledge, attitude and practice of general population in Aseer about 'Do Not Resuscitate' (DNR) conceptin order to find out the barriers and obstacles in addressing DNR status of the patients.

METHODOLOGY AND DESIGN OF STUDY

The cross-sectional questionnaire based study was conducted in the 1200 bedded-tertiary health care center of King Khalid University and associated hospital Saudi Arabia. The study aimed to evaluate theknowledge, attitude and practice of general population about the 'DNR order'. The survey was conducted between 10thMay, 2020 to 29thAugust, 2020.The prepared structured questionnaire consisted of total 15 questions related to 'DNR orders' and 05 questions regardinggeneral demographic data including age, gender, nationality (Saudi or Non- Saudi), educational and job profile. The Institutional ethical clearance ((ECM# 2020-233)-(HAPO-06-B-001) dated 18/05/2020) was obtained before the start of study. The inclusion criteria for subject's participation in the study consisted of: 1. over the age of 18 years. 2. Residing in Aseer, Saudi Arabia for not less than 5 years. 3. without any history of psychiatric disorder.4. literate enough to understand the questionnaire. The subjects who were not willing to participate, with incompletely filled forms, illiterate and having age less than 18 years were excluded.

The face validity and content were used to assess the validity of the questionnaire. To assess the face validity of the questionnaire, 25 randomly selected participants were provided with a copy of the questionnaire, and the questionnaire was evaluated for simplicity, clarity, and comprehensibility. To assess the content validity, a copy of prepared 'DNR' study questionnaire was provided randomly to 11 Nursing faculty members, 4 Psychiatrists, 3 Anesthetists, and 2 Oncologist in the King Khalid University and associated hospital,and their opinions were considered. For measuring construct validity, factor analysis was performed, and revealed 12 questions that explained 71% of variance. To assess the reliability of the questionnaire, 24randomly selected participant'sresponses were tested–retested,and scores showed a correlation of 88% in the Spearman correlation coefficient and split half correlation was 77.6%.
After this, the soft copy of'DNR survey questionnaire form' was send randomly to 3324subjects (both male and female) by various social media applications thatincluded *Google* survey link with

questionnaire. At least two reminders were sent to all the participants, who did not respond in stipulated allotted time of 5days. After the completion of study, the data was collected, tabulated and subjected to descriptive analysis using IBM SPSS version 20.0 software.

RESULTS

A total 3324'DNR survey questionnaire form' distributed, 3261 subjects responded with overall response rate of 98.10%. Out of 3261 responses, 63 were excluded because of incomplete questionnaire replies, participation age less than 18 years or the participants were residing out of Aseer region, Saudi Arabia. So, total of 1510 responses were finally considered for further analysis.

Table 1 describes the age group distribution of all participants (n=1510). Of the total study maximum respondents' belong to 21-30 year age group (44.64%) followed by 41-50 year age group (18.41%), 31-40 year group (16.95%), <20 year age group (14.77%) and least response from >51 year age group (5.23%).
Table 2 showed the demographic characteristics of the respondents'. Among total respondents' 97.54% were Saudi Arabian residents. Also the response rate wasnoted slightly more from male respondents' (51.32%) then female (48.68%). Regarding job profile of the respondents', the student participation was found maximum (41.72%) while participation from health care professionals was least (3.44%). As per educational status characteristics noted, most of the respondents' were university qualified or studying (63.44%).
Table 3described the reply to 04 questions by subjects regarding Knowledge of 'DNR rule'. The 62.38% respondents' replied 'NO' to question No 01 i.e Have you ever heard about 'Do Not Resuscitate (DNR)'? while 37.62 % subjects were found to be already aware of this term. Among them, 56.36% people come across 'DNR rule' information (question 02) through *Facebook* application while 24.45% heard about DNR from some health care practitioner or health faculty. Most of the respondents' (37.48%) were satisfied with both the responses of question 03 while 33.44% respondents have no idea about what is DNR? although they have heard about the term. Similarly, most of the participants (34.40%) were not aware of the indications of DNR (question 04)
Table 4described the replies to 05 questions by subjects regarding Attitude towards 'DNR rule'. Regarding question 05 replies, 63.84% participants thought that 'DNR' is important. Moreover, 63.84% respondents' are of opinion that age is not the only criteria for DNR. (Question 06) Majority of the people (69.27%) thought that DNR will decrease pain suffering during the end-of-life time. (Question 07) Also 57.81% of the people feel that there is a large impact of DNR on the other patients. (Question 08) There is no reduction in the stress levels among family members of the patient after going for DNR order as per majority of replies to question 09.

Table 5 describes the replies to 06 questionsby subjects regarding Practice of 'DNR rule'. The 57.15% respondents' of the opinion that medical team dealing with the patient is the most suitable choice for taking the final decision of DNR. (Question 10) Even within the medical team, the patient's three consultant physicians in agreement (61.72%) was the best choice as DNR decision taking authority. (Question 11) From patient's side, the prior permission of patient himself or herself is the best option (42.45%) for DNR order. (Question 12) Most of the respondents'were not sure(42.78%),when they were asked about DNR procedure for one of their relatives or yourself if the medical need arises for this(Question 13). Majority of the participants thought that 'brain death' of the patientis the best time (43.17%) to take the call for DNR? (Question 14) Most of the subject's never (91.19%) notified to DNR to their relatives. (Question 15)

DISCUSSION

This survey was well received by general public of Aseer, Saudi Arabia and the high response rate (98.10%) might be indicative of the importance of DNR topic to them. In our survey, most participants had never heard the terms *do not resuscitate* or *DNR* (62.38%) and were not able to identify the correct definition (37.48%) Our findings might be indicative of poor knowledge and understanding of resuscitation among Aseer population. Moreover, maximum people who are aware of DNR got the information through *Facebook* application that proved the positive role of social

media in educating Aseer general public about important Medical care at the end-of-life. Most of the respondents' (63.44%) were holding university level of education in the present study. This proves that level of education and lack of understanding and inadequate training among general public were the main barriers and obstacles for initiation and completion of DNR orders. These findings were similar to two more studies from Saudi Arabia.[12, 13]

Most respondents in our study indicated that the most appropriate time for the first discussion of DNR orders occur late in a patient's course of illness, often in a crisis setting or when the patient is no longer competent i.e during Brain death, which is in agreement with few past studies.[14-16] On the contrary, the opinionof other researchers[17,18]was that the most appropriate time for the first discussion of DNR orders is when a person is healthy.Barriers to early discussions of DNR might include the physician's level of comfort and training prior to the focus on patient autonomy. There might also be fear on the physician's part that doing a DNR discussion with healthy patient will increase distress and may deteriorate his/her medical condition. [19]

Based on the results of the present study about decision on DNR, from hospital side 57.15% of the participants believed that this decision should be taken by a team consisting of three physicians.Although, 42.45% participants believed that the patient's decision was most respectful of DNR, but due to patients' critical condition, their tiredness, and frustration, the patient's decision alone should not be the norm. the results were supported by another study done in Hong Kong, 74% of medical and non-medical students believed that only the patient's opinion about the decision as to whether to have DNR or not was important and that the family's viewpoint should not be considered.[20]Relatives of DNR order patients willing to participate in decision making with other team members, because they prefer benefit from collective wisdom.

Present study showed that there is a great impact of DNR order patient over the other patients in the hospital. These results are supported by a study [21] carried out in Saudi Arabia in 2016, where internes and residents believed that patients admitted near to DNR order patient noticed that during visiting hours, relatives spent less time with DNR patients. Also the financial issues of families on health care of critically ill patients may affect post 'DNR order' behaviour towards patients. But in a study [22] conducted in 2000, Saudi doctors also believed that the cost of treatment and the lack of beds in critical units had little effect on their decision about DNR patients.

In the present study, 63.84% of participants believed that the quality of life in the present and future of the patient holds more importance in DNR decision rather than patient's age alone. On the other hand in a study conducted by Tajari M, *et al*[23]almost half of the participants believed that age should be the major factor in deciding DNR order in patients as the life expectancy of elderly patients was futile after chronic illness.

An important limitation of this study is that the subjects were chosen from one suburban region, (Aseer) of Saudi Arabia which may limit the generalization of the results. Moreoverall the 'DNR survey forms' were distributed only via social media, due to existing Corona pandemic, hence total participants were underestimated. Effect of religion and culture were not explored in this study and these might play important role in general public attitudes toward this DNR rule.

CONCLUSION

The study concluded that low education level regarding medical care at the end-of-life, lack of understanding and inadequate training among general public were the main barriers and obstacles for initiation and completion of DNR orders in Aseer, Saudi Arabia

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Table no. 1: Distribution of Respondents' according to age groups.

Age groups	No. of Respondents' (n = 1,510)	Percentage (%)
<20	223	14.77
21-30	674	44.64
31-40	256	16.95
41-50	278	18.41
>51	79	5.23

Table no. 2: Distribution of Respondents' according to Demographic variables

Variables		No. of Respondents' (n)	Percentage (%)
Nationality	Saudi	1473	97.54
	Non-Saudi	37	2.45
Gender	Male	775	51.32
	Female	735	48.68
Job	Student	630	41.72
	Teacher	211	13.97
	Health care	52	3.44
	Military	208	13.77
	Not-employee	204	13.51
	Private sector employee	73	4.83
	Others	132	8.74
Educational qualification	Primary school	17	1.12
	Intermediate school	442	29.27
	High school	51	3.38
	University	958	63.44
	Post-graduate	42	2.78

Table no. 3: Distribution of Respondents' reply to questions regarding Knowledge of 'DNR rule'

Questions	Options	No. of Respondents'	Percentage (%)
Q1. Have you ever heard about 'Do Not Resuscitate (DNR)'?	YES	568	37.62
	NO	942	62.38
Q2. If yes, where did you got the information?	A health practitioner or health faculty	339	22.45
	Radio	11	0.73
	Twitter	93	6.16
	You tube	16	1.05
	Facebook	882	58.36
	Snap chat	7	0.46
	Whatsapp	28	1.85
	Television	86	5.69
	Other than that	112	7.42
Q3. What is'Do Not Resuscitate	Medical order written by a doctor. It instructs health care providers not to do cardiopulmonary	187	12.38

(DNR)'?	resuscitation (CPR) if a patient's breathing stops or if the patient's heart stops beating.		
	The order or prior instructions issued by the doctor or the person authorized to prevent health care providers not to do cardiopulmonary resuscitation (CPR) if a patient's breathing stops or if the patient's heart stops beating.	201	13.31
	Both are right	566	37.48
	Other	51	3.38
	No idea	505	33.44
Q4. What are the conditions where 'Do Not Resuscitate (DNR)' are done? (you can choose more than one)	If the patient's condition is not fit for resuscitation	643	42.58
	If the patient's disease is incurable, not treatable, and death is achieved	101	6.69
	If the patient is in a state of disability, or in a state of mental inactivity with a chronic disease	27	1.79
	If the patient has evidence of brain damage that is difficult to treat	51	3.38
	If resuscitation of the heart and lungs is not beneficial, and is not appropriate for a specific situation	135	8.94
	I have no idea	518	34.30
	Other……..mention it	46	3.05

Table no. 4: Distribution of Respondents' reply to questions regarding Attitude towards 'DNR rule'

Questions	Options	No. of Respondents'	Percentage (%)
Q5. Do you think 'Do not resuscitate (DNR)' is important?	Yes	964	63.84
	No	546	36.16
Q6. Is the age the only reasons for 'Do not resuscitate (DNR)'?	Yes	546	36.16
	No	964	63.84
Q7. Do you feel 'Do not resuscitate (DNR)' it will decrease the pain?	Yes	1046	69.27
	No	464	30.73
Q8. Do you think there are impact of 'Do not resuscitate (DNR)' to others patients?	Yes	873	57.81
	No	637	42.19
Q9. If we do a 'Do not resuscitate (DNR)', Is it going to decrease the stress to family?	Yes	601	39.80
	No	909	60.19

Table no. 5: Distribution of Respondents' reply to questions regarding Practice of 'DNR rule'

Questions	Options	No. of Respondents' (n)	Percentage (%)
Q10. Who do you think is the most suitable person to take a 'Do Not Resuscitate (DNR)' procedure??	The patient (makes a prior decision) or a relative	292	19.33
	Medical team	863	57.15
	Other	59	3.90
	I don't think it's supposed	223	14.77
Q11. Who can take a decision of 'Do Not Resuscitate (DNR)' from the Hospital side?	When three consultant physicians agree.	932	61.72
	The doctor supervising the patient only.	208	13.77
	I have no idea	285	18.87
Q12. Who can take a decision of 'Do Not Resuscitate (DNR)' from the patient's relative side?	For a spouse	152	10.07
	Parents	437	28.94
	Taking prior permission from the patient to make decisions when needed	641	42.45
	Brotherhood	37	2.45
	Others	243	16.09
Q13. Do you think that you will agree to a' Do Not Resuscitate (DNR)' procedure for one of your relatives or yourself (God forbid) if the medical need arises for this?	Yes	426	28.21
	No	438	29.00
	May be	646	42.78
Q14. What is the best time to take the call for 'Do Not Resuscitate (DNR)'?	In the case of brain death	652	43.18
	If the age of the patient is over 90 years	72	4.77
	Discuss before hospitalization or in the presence of a chronic disease	266	17.62
	I don't know	520	34.43
Q15. Have you ever notified to 'Do Not Resuscitate (DNR)' to your relatives?	Yes	256	16.95
	No	1254	83.05
• What was your response?	Sad	1377	91.19
	Amazed	24	1.59
	I rested for the sake of his comfort	39	2.58
	I do not remember	51	3.38
	Other	19	1.26
• WHEN	Less than a year ago	315	20.86
	Less than 5 years ago	128	8.48
	Less than 10 years ago	1001	66.29
	More than 10 years ago	67	4.44