

# Awareness and Ethical Attitudes about DNR of Emergency Department Students (Differences in Recognition According to Bioethics Education)

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## DNR에 대한 응급구조학과 학생들의 인식과 윤리적 태도 (생명윤리 교육에 따른 인식 비교)

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**Abstract** This study as a descriptive survey attempts to establish the objective foundation for DNR as investigating Emergency Medical Technology students' recognition and ethical attitudes on DNR. The structured questionnaires were given to 257 students who are studying in Jeollanam-Do and Jeollabuk-Do between the period of September 1 and September 30, 2012. The data were analyzed in frequency, percentage,  $\chi^2$ -test, and crosstabs by using SPSS 18.0 program. The results indicated that ethical attitudes on DNR were statistically significant by individual's general factors such as sex, age, religion, and education. According to the result, it is necessary to have an objective guideline of ethical attitudes and offer professional education continuously about DNR in order to have sufficient information to establish the objective foundation for DNR.

**요 약** 본 연구는 응급구조학과 학생들의 DNR에 대한 인식과 윤리적 태도를 알아봄으로써, DNR에 대한 객관적인 기틀을 마련하기 위해 시도된 서술적 조사연구이다. 연구대상은 전라남, 북도에 소재한 응급구조학과 학생 257명을 대상으로 하였다. 자료수집 기간은 2012년 9월 1일부터 9월 30일까지였으며, 자료수집 방법은 구조화된 질문지를 이용하였다. 자료 분석 방법은 SPSS 18.0 program을 이용하여 빈도, 백분율,  $\chi^2$ -test, 교차분석이다. 연구 결과 대상자의 일반적 특성에 따른 DNR과 관련된 윤리문제에 대한 태도 차이는 성별, 연령, 학년, 종교, 교육유무에 따라 윤리적 태도간의 유의한 차이가 있었다. 따라서 본 연구 결과를 바탕으로 객관적인 기준이 될 수 있는 지침서와 생명윤리에 따른 전문적인 DNR 교육이 계속적으로 이루어져 충분한 정보제공이 이루어져야 할 것이라 사료된다

**Key Words** : Awareness, DNR(Do not resuscitate), Emergency Department Students, Ethical Attitudes

## 1. Introduction

### 1.1 Necessity of a research

Due to the development in medical technology and modern science, the average life expectancy rate has been rising significantly. Cardiopulmonary resuscitation (CPR) is developed in 1960 to treat the patient who has sudden

cardiac death (SCD), and then CPR expands the chance of survival[1,2].

CPR is not able to treat the patient who has chronic disease; however, it is used to save the person who has no chance to be recovered[3,4]. This brings up the ethical dilemma. Patient has right to die, so suffering should not be prolonged unnecessarily. In addition, patient's families

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has financial and psychological burdens of a patient who has no chance to be recovered. The medical concept of death makes ethical dilemma such as brain death, death with dignity, euthanasia, and decision of death that becomes the medical issues[5]. Decision of DNR can cause death of patient; therefore, it must be careful before medical team decide[6]. The DNR prohibit the unnecessary treatment to patient who has no chance to revive permanantly which can protect human dignity[7].

Medical team must follow ethical value and objective data of DNR to treat the patient who demand DNR[8]. Therefore, medical team needs to be educated when they make ethical decision to minimize the ethical dilemma to decide DNR[2].

To judge and understand Biomedical ethic issues, respect or sense of ethics of human life are important. Emergency medical technology student also need to understand ethics of human life along with doctors and nurses[9]. EMT is the first aid to help anyone in trouble rather than doctor and nurse; therefore, their ethical decision is very important at urgent situation. EMT student is required to learn good attitude for themselves to understand how the ethical decision of DNR is important in the medical field. There are research materials regardning DNR for nurses[10-13], doctors[14,15], 911 ambulance workers[16], and nursing students[2] while there are no research materials for EMT students.

This research provides fundamental data of ethical issues related to DNR to EMT students according to bioethical education.

### 1.2 The purpose of the research

The purpose of the research is the recognition related to DNR and ethical attitude of EMT students, and the concrete objects are as in the following.

- 1) The comparison between the recognition of ethical issues and the recognition according to the bioethical education related to DNR.
- 2) The comparison between the understanding way of recognizing related to DNR and the attitude according to bioethical education.
- 3) Difference of attitude and recognition of ethical issues related to DNR according to general characteristic.

## 2. Research Methods

### 2.1 Research Design

This study as a descriptive survey attempts to establish the objective foundation for DNR as investigating Emergency Medical Technology students' recognition and ethical attitudes on DNR.

### 2.2 Research Object

The structured questionnaires were given to 257 students who are studying in Jeollanam-Do and Jeollabuk-Do.

### 2.3 Research Tool

The research tool is composed of three parts of 12 general features, 8 recognition on the ethical issues related to DNR, and 20 ethical attitudes related to DNR.

### 2.4 Research Period and Method

Between the period of September 1 and September 30, 2012, the questionnaires were handed out to some students who agreed to participate in this research after the intent and purpose of this research was clearly explained to the deans of each universities. The totals of 300 questionnaires were handed out to the students, and 262 questionnaires were collected. The totals of 257 questionnaires were analyzed except some improper questionnaires.

### 2.5 Data Analyzing Method

The collected data were analyzed by using SPSS 18.0 program.

$\chi^2$ -test was used to analyze coessentiality of subjects according to their general characteristics and differences in recognition and attitudes according to bioethics education.

### 2.6 Limitation of the Research

Since this research is only conducted for certain EMT students, the result of this research is limited in those certain group if people and cannot be applied to the overall people.

### 3. Conclusion

#### 3.1 Participants' general characteristics and coessentialities

Shows analysis result of the participants' general characteristics and coessentialities[Table 1]. The participants are composed of 50.2% of women and 49.8% of men. Age under 20 years old take the greatest part of the participants as 44.7%, 21 to 23 years old are 42.4%, and over 24 years old are 12.8%. 49% of the participants are first year students. Participants who do not have religion are 44.7% and Christians are 24.9% in order of percentage. This research found differences in order to ages and grades and coessentialities in order to gender and religion.

[Table 1] Analysis result of the participants' general characteristics and coessentialities

	Categories	Total	Incomplete subject of bioethic	Complete subject of bioethic	$\chi^2$	p
		257	114 (44.4)	143 (55.6)		
Gender	Male	128(49.8)	62(24.1)	66(25.7)	1.719	.118
	Female	129(50.2)	52(20.2)	77(30.0)		
Ages	under 20	115(44.7)	20(7.8)	95(37.0)	63.189	.000***
	21~23 years old	109(42.4)	68(26.5)	41(16.0)		
	over 24	33(12.8)	26(10.1)	7(2.7)		
Grade	First year student	126(49.0)	19(7.4)	107(41.6)	116.529	.000***
	Second year student	45(17.5)	42(16.3)	3(1.2)		
	Third year student	50(19.5)	21(8.2)	29(11.3)		
	Fourth year student	36(14.0)	32(12.5)	4(1.6)		
Religion	Buddhism	26(10.1)	16(6.2)	10(3.9)	3.924	.270
	Christian	64(24.9)	29(11.3)	35(13.6)		
	Catholic	24(9.3)	9(3.5)	15(5.8)		
	N/A	143(55.6)	60(23.3)	83(32.3)		

#### 3.2 Participants' recognition on the ethical issues related to DNR and differences in recognition according to bioethics education.

Shows the analysis result of Participants' recognition on the ethical issues related to DNR and differences in recognition according to bioethics education[Table 2].

[Table 2] Participants' recognition on the ethical issues related to DNR and differences in recognition according to bioethics education.

Characteristics	Categories	Total	Incomplete subject of bioethic	Complete subject of bioethic	$\chi^2$	p
Necessity of DNR	Required	228(88.7)	108(42.0)	120(46.7)	7.419	.005**
	Not Required	29(11.3)	6(2.3)	23(8.9)		
Reasons for agreeing of DNR	Painless death	110(42.8)	41(16.0)	69(26.8)	3.913	.141
	State of irreversible coma	119(46.3)	59(23.0)	60(23.3)		
	Aggravate pain	28(10.9)	14(5.4)	14(5.4)		
Resonable decision of DNR	Patient's will	94(36.6)	45(17.5)	49(19.1)	8.119	.044*
	Patient and families' will	109(42.4)	51(19.8)	58(22.6)		
	Agreement between families and doctor	47(18.3)	13(5.1)	34(13.2)		
	etc.	7(2.7)	5(1.9)	2(0.8)		
Requirement of explanation of DNR	Yes	242(94.2)	109(42.4)	133(51.8)	.784	.432
	No	15(5.8)	5(1.9)	10(3.9)		
Explanation chance of DNR	After immediate hospitalization of late-stage disease patient	145(56.4)	72(28.0)	73(28.4)	8.349	.039*
	After patient is transferred to ICU	42(16.3)	18(7.0)	24(9.3)		
	Comatose state	32(12.5)	15(5.8)	17(6.6)		
	Voluntary respiratory standstill	38(14.8)	9(3.5)	29(11.3)		
Increasing the demand after explanation of DNR	Yes	132(51.4)	57(22.2)	75(29.2)	20.836	.000***
	No	23(8.9)	20(7.8)	3(1.2)		
	N/A	102(39.7)	66(25.7)	36(14.0)		
Requirement of update of guidebook of DNR	Yes	201(78.2)	97(37.7)	104(40.5)	9.833	.007**
	No	18(7.0)	9(3.5)	9(3.5)		
	N/A	38(14.8)	8(3.1)	30(11.7)		

88.7% of participants choose that 'DNR is necessary', and 46.3% of them choose that 'for peaceful death' as their main reason. 42.4% of participants choose that 'DNR has to be decided by patient and family. 36.6% of participants choose that 'DNR has to be decided by patient.' 94.2% of them choose that 'Medical team must explain about DNR to patient,' 56.4% participants choose that 'after immediate hospitalization of late-stage disease patient.'

51.4% of them choose that 'after explanation of DNR, more patient will want,' 78.2 participants choose that 'the update of guidebook of DNR is required.'

The results are statistically significant that shows comparison between students who complete or incomplete subject of bioethic. Necessity of DNR(  $\chi^2=7.419$ ,  $p=.005$ ), Reasonable decision of DNR(  $\chi^2=8.119$ ,  $p=.044$ ), Explanation chance of DNR(  $\chi^2=8.349$ ,  $p=.039$ ), Increasing the demand after explanation of DNR(  $\chi^2=20.836$ ,  $p=.000$ ), Requirement the update of guidebook of DNR(  $\chi^2=9.833$ ,  $p=.007$ ) 46.7% of participants who complete subject of bioethic choose that 'Necessity of DNR,' and those students choose that 'for peaceful death' as their main reason. Participants who incomplete subject of bioethic choose that 'Even though medical team make an effort to revive the patient, generally patients are comatose state.

Explanation chance of DNR is recommended after

immediate hospitalization of late-stage disease patient. 29.2% participants who complete subject of bioethic choose that 'Increasing the demand after explanation of DNR' Most students who complete or incomplete subject of bioethic choose 'Requirement the update of guidebook of DNR.'

### 3.3 Participants' attitudes on the ethical issues related to DNR and differences in attitudes according to bioethics education.

Shows participants' attitudes on the ethical issues related to DNR and differences in attitudes according to bioethics education[Table 3]. Question 3 shows that 46.3% participants disagree with 'Medical team must prolong patient's life even though patient doesn't have chance to survive anymore,' Question 7 shows that 51.4% participants agree with 'Medical team should not perform CPR if pt. disagree,' Question 12 shows that 37.4% participants disagree with 'After DNR declaration doctor must use a respirator effortlessly,' Question 14 shows that 60.7% participants agree with 'After DNR declaration, if family wants continuing treatment, medical team must treat patient such as CPR followed by the families' decision, Question 17 shows that 80.5% participants agree with 'During EMT co-worker treat the pt. who declared DNR under non-Aseptic condition, advice is required

[Table 3] Participants' attitudes on the ethical issues related to DNR and differences in attitudes according to bioethics education.

	Contents		Total	Incomplete subject of bioethic	Complete subject of bioethic	$\chi^2$	p
3	Medical team must prolong patient's life even though patient doesn't have chance to survive anymore.	Agree	63(24.5)	44(17.1)	19(7.4)	9.706	.008**
		N/A	75(29.2)	44(17.1)	31(12.1)		
		Disagree	119(46.3)	55(21.4)	64(24.9)		
7	Medical team should not perform CPR if pt. disagree.	Agree	132(51.4)	70(27.2)	62(24.1)	7.903	.005**
		N/A	67(26.1)	25(9.7)	42(16.3)		
		Disagree	58(22.6)	19(7.4)	39(15.2)		
12	After DNR declaration doctor must use a respirator effortlessly.	Agree	75(29.2)	41(16.0)	34(13.2)	7.256	.027*
		N/A	86(33.5)	29(11.3)	57(22.2)		
		Disagree	96(37.4)	44(17.1)	52(20.2)		
14	After DNR declaration, if family wants continuing treatment, medical team must treat patient such as CPR followed by the families' decision.	Agree	156(60.7)	61(23.7)	95(37.0)	7.032	.030*
		N/A	59(23.0)	27(10.5)	32(12.5)		
		Disagree	42(16.3)	26(10.1)	16(6.2)		
17	During EMT co-worker treat the pt. who declared DNR under non-Aseptic condition, advice is required immediately.	Agree	207(80.5)	96(37.4)	111(43.2)	6.115	.047*
		N/A	45(17.5)	14(5.4)	31(12.1)		
		Disagree	5(1.9)	4(1.6)	1(0.4)		
18	Doctor declines their attention in the patient who declared DNR.	Agree	54(21.0)	27(10.5)	27(10.5)	6.605	.037*
		N/A	47(18.3)	13(5.1)	34(13.2)		
		Disagree	156(60.7)	74(28.8)	82(31.9)		

immediately,' Question 18 shows that 60.7% participants disagree with 'Doctor declines their attention in the patient who declared DNR.' The results are statistically significant that shows comparison between students who complete and incomplete subject of bioethic. Question 3(  $x^2=9.706$ ,  $p=.008$ ), Question 7(  $x^2=7.903$ ,  $p=.005$ ), Question 12(  $x^2=7.256$ ,  $p=.027$ ), Question 14(  $x^2=7.032$ ,  $p=.030$ ), Question 17(  $x^2=6.115$ ,  $p=.047$ ), Question 18(  $x^2=6.605$ ,  $p=.037$ )

### 3.4 Differences in attitude on ethical issues related to DNR according to participants' general characteristic

Shows differences in attitude on ethical issues related to DNR according to participants' general characteristic [Table 4].

The results indicated that ethical attitudes on DNR are statistically significant by participants' general characteristics such as gender, age, religion, and education. According to participants' gender, Question 10(  $x^2=7.582$ ,  $p=.023$ ),

Question 17(  $x^2=14.971$ ,  $p=.001$ ), Question 18(  $x^2=9.472$ ,  $p=.009$ ), Question 20(  $x^2=16.920$ ,  $p=.000$ ), there are differences in attitude on ethical issues. According to participants' ages, Question 4(  $x^2=10.135$ ,  $p=.038$ ), Question 7(  $x^2=21.266$ ,  $p=.000$ ), Question 12(  $x^2=9.860$ ,  $p=.043$ ), Question 13(  $x^2=10.776$ ,  $p=.029$ ), Question 17(  $x^2=12.389$ ,  $p=.015$ ), Question 18(  $x^2=19.715$ ,  $p=.001$ ), the results are statistically significant. According to participants' grades, Question 1(  $x^2=17.495$ ,  $p=.008$ ), Question 2(  $x^2=16.967$ ,  $p=.009$ ) Question 3, (  $x^2=24.497$ ,  $p=.000$ ), Question 4(  $x^2=20.176$ ,  $p=.003$ ), Question 7(  $x^2=30.973$ ,  $p=.000$ ), Question 18(  $x^2=24.434$ ,  $p=.000$ ), the results are statistically significant. According to participants' religions, Question 3(  $x^2=15.214$ ,  $p=.019$ ), the results are statistically significant. According to participants' bioethic education, Question 3(  $x^2=9.706$ ,  $p=.008$ ), Question 7(  $x^2=8.531$ ,  $p=.014$ ), Question 12(  $x^2=7.256$ ,  $p=.027$ ), Question 14(  $x^2=7.032$ ,  $p=.030$ ), Question 17(  $x^2=6.115$ ,  $p=.047$ ), Question 18(  $x^2=6.605$ ,  $p=.037$ ), the results are statistically significant.

[Table 4] Differences in attitude on ethical issues related to DNR according to participants' general characteristic

	Contents	Categories	Agree	N/A	Disagree	$x^2$	p
			Total	Total	Total		
Gender	10. Medical team must explain the condition of patient who has bad condition to patient's family even though they will get a shock.	Male	95(37.0)	23(8.9)	10(3.9)	7.582	.023 <sup>+</sup>
		Female	113(44.0)	12(4.7)	4(1.6)		
	17. During EMT co-worker treat the pt. who declared DNR under non-Aseptic condition, advice is required immediately.	Male	91(35.4)	34(13.2)	3(1.2)	14.971	.001 <sup>**</sup>
		Female	116(45.1)	11(4.3)	2(0.8)		
	18. If patient's family complains to doctor who decline their attention to patient who declared DNR, co-worker protect doctor's right as a medical member.	Male	35(13.6)	27(10.5)	66(25.7)	9.472	.009 <sup>**</sup>
		Female	19(7.4)	20(7.8)	90(35.0)		
	20. If patient has physiologic changes even though patient declared DNR, medical team must treat the patient.	Male	95(37.0)	30(11.7)	3(1.2)	16.920	.000 <sup>***</sup>
		Female	118(45.9)	7(2.7)	4(1.6)		
Ages	4. Family doctor must declare DNR to patient.	Under 20	34(13.2)	33(12.8)	48(18.7)	10.135	.038 <sup>+</sup>
		21-23	32(12.5)	17(6.6)	60(23.3)		
		Over 24	12(4.7)	11(4.3)	10(3.9)		
	7. Medical team should not perform CPR although patient wants to get continuous treatment.	Under 20	41(16.0)	38(14.8)	36(14.0)	21.266	.000 <sup>***</sup>
		21-23	71(27.6)	21(8.2)	17(6.6)		
		Over 24	20(7.8)	8(3.1)	5(1.9)		
	12. After patient declared DNR, doctor has to use respirator effortlessly.	Under 20	26(10.1)	49(19.1)	40(15.6)	9.860	.043 <sup>+</sup>
		21-23	40(15.6)	28(10.9)	41(16.0)		
		Over 24	9(3.5)	9(3.5)	15(5.8)		
	13. If patient needs DNR declaration, medical team must follow the DNR guidebook.	Under 20	74(28.8)	33(12.8)	8(3.1)	10.776	.029 <sup>+</sup>
		21-23	86(33.5)	16(6.2)	7(2.7)		
		Over 24	26(10.1)	3(1.2)	4(1.6)		
	17. During EMT co-worker treat the pt. who declared DNR under non-Aseptic condition, advice is required immediately.	Under 20	84(32.7)	28(10.9)	3(1.2)	12.389	.015 <sup>+</sup>
		21-23	96(37.4)	13(5.1)	0(0)		
		Over 24	27(10.5)	4(1.6)	2(0.8)		

Ages	18. If patient's family complains to doctor who decline their attention to patient who declared DNR, co-worker protect doctor's right as a medical member.	Under 20	23(8.9)	28(10.9)	64(24.9)	19.715	.001**
		21~23	16(6.2)	17(6.6)	76(29.6)		
		Over 24	15(5.8)	2(0.8)	16(6.2)		
Grade	1. Medical team must accept patient's decision. when patient who is not expected to live refuses all treatment.	First year student	97(37.7)	19(7.4)	10(3.9)	17.495	.008**
		Second year student	38(14.8)	2(0.8)	5(1.9)		
		Third year student	37(14.4)	2(0.8)	11(4.3)		
		Fourth year student	33(12.8)	1(0.4)	2(0.8)		
	2. Respirator must be stopped to use if family wants.	First year student	64(24.9)	38(14.8)	24(9.3)	16.967	.009**
		Second year student	26(10.1)	9(3.5)	10(3.9)		
		Third year student	31(12.1)	5(1.9)	14(5.4)		
		Fourth year student	27(10.5)	8(3.1)	1(0.4)		
	3. Medical team must use all treatment methods to prolong patient's life even though they are not expected to live.	First year student	43(16.7)	37(14.4)	46(17.9)	24.497	.000***
		Second year student	2(0.8)	13(5.1)	30(11.7)		
		Third year student	12(4.7)	18(7.0)	20(7.8)		
		Fourth year student	6(2.3)	7(2.7)	23(8.9)		
	4. Family doctor must declare DNR to patient.	First year student	38(14.8)	40(15.6)	48(18.7)	20.176	.003**
		Second year student	12(4.7)	10(3.9)	23(8.9)		
		Third year student	12(4.7)	4(1.6)	34(13.2)		
		Fourth year student	16(6.2)	7(2.7)	13(5.1)		
7. Medical team should not perform CPR although patient wants to get continuous treatment.	First year student	45(17.5)	43(16.7)	38(14.8)	30.973	.000***	
	Second year student	24(9.3)	13(5.1)	8(3.1)			
	Third year student	37(14.4)	8(3.1)	5(1.9)			
	Fourth year student	26(10.1)	3(1.2)	7(2.7)			
18.If patient's family complains to doctor who decline their attention to patient who declared DNR, co-worker protect doctor's right as a medical member.	First year student	21(8.2)	35(13.6)	70(27.2)	24.434	.000***	
	Second year student	7(2.7)	6(2.3)	32(12.5)			
	Third year student	11(4.3)	4(1.6)	35(13.6)			
	Fourth year student	15(5.8)	2(0.8)	19(7.4)			
Religion	3. Medical team must use all treatment methods to prolong patient's life even though they are not expected to live.	Buddhism	5(1.9)	4(1.6)	17(6.6)	15.214	.019*
		Christian	15(5.8)	29(11.3)	20(7.8)		
		Catholic	8(3.1)	6(2.3)	10(3.9)		
		N/A	35(13.6)	36(14.0)	72(28.0)		

Education	3. Medical team must use all treatment methods to prolong patient's life even though they are not expected to live.	Complete	19(7.4)	31(12.1)	64(24.9)	9.706	.008**
		Incomplete	44(17.1)	44(17.1)	55(21.4)		
	7. Medical team should not perform CPR although patient wants to get continuous treatment.	Complete	70(27.2)	25(9.7)	19(7.4)	8.531	.014*
		Incomplete	62(24.1)	42(16.3)	39(15.2)		
	12. After patient declared DNR, doctor has to use respirator effortlessly.	Complete	41(16.0)	29(11.3)	44(17.1)	7.256	.027*
		Incomplete	34(13.2)	57(22.2)	52(20.2)		
	14. After DNR declaration, if family wants continuing treatment, medical team must treat patient such as CPR followed by the families' decision.	Complete	61(23.7)	27(10.5)	26(10.1)	7.032	.030*
		Incomplete	95(37.0)	32(12.5)	16(6.2)		
	18. If patient's family complains to doctor who decline their attention to patient who declared DNR, co-worker protect doctor's right as a medical member.	Complete	27(10.5)	13(5.1)	74(28.8)	6.605	.037*
		Incomplete	27(10.5)	34(13.2)	82(31.9)		

## 4. Discussion

In this research, total 88.7% of participants whose are 46.7% of educated students and 42% of uneducated students answer that DNR is necessary. This result is lower than the other research results which are conducted to nurses; 95.1% on Myung-Hee Jeon's[13] and 93.1% on Hyun-Im Kang's[4] research, while it is higher than the research result which is conducted to nursing students; 63.4% on Sung-Mi Kim's[2] research. It is because students are unlikely to be exposed to clinical situations comparing to nurses. Also, EMT students are more likely to do CPR in the field than nursing students, so they are more likely choose that DNR is necessary.

42.4% of participants answer that the patient and family have right to make their own decision, and the result is composed of 22.6% of educated students and 19.8% of uneducated students. This result is similar to the other research result such as 46.6% on Hyun-Im Kang's research[4], 70.7% on Mi-Hae Sung's[11] research, and 47.8% on Sung-Sook Han's[17] research. According to the result, participants consider the patient's will and decision as the most important factor when they are making a decision about DNR.

94.2% of participants answer that the proper explanation about DNR is necessary, and 56.4% of participants choose 'After immediate hospitalization of late-stage diseases patient or cancer' as the proper time. This result is correspond with Soon-Kyu Yu's[16] research and Soo-Hyun Jung's[18] research results. Therefore, DNR should be fully explained immediately

after patients are hospitalized to properly reflect patient and family's decision so that patient and family are able to consider on patient's condition or even death in the worst case. According to the Ellen's[19] research, making a decision on DNR by only doctor and family members except patient will make family to feel guilty or pressure about the uncertainty of future. Therefore, when patient has will to live, patient's preference on special treatments such as CPR, antibiotics, saps, or nutrition should be well informed. In South Korea, there's a need for an institutional framework on DNR to be easily used in field and reflect patient's free will like Ellen's research.

78.2% of participants answer that the guidebook of DNR is required to be updated. This result is correspond with Sung-Mi Kim's[2], Hyun-Im Kang's[4], Mi-Hae Sung's[11], and Soon-Kyu Yu's[16] research results. Therefore, proper education on DNR is required, and the guidebook of DNR is required to be systematically updated to protect conflicts and legal issues that are occasionally caused by one's decision under a law. Among the questions that are asking about the attitudes on the ethical issues related to DNR, Question 3 shows that 46.3% participants disagree with 'Medical team must use all treatment methods to prolong patient's life even though they are not expected to live' ( $\chi^2=9.706, p=.008$ ), Question 7 shows that 51.4% participants agree with 'Medical team should not perform CPR although patient wants to get continuous treatment' ( $\chi^2=7.903, p=.005$ ), Question 14 shows that 60.7% participants agree with 'After DNR declaration, if family wants continuing treatment, medical team must treat patient such as CPR

followed by the families' decision' ( $\chi^2=7.032$ ,  $p=.030$ ), Question 18 shows that 60.7% participants disagree with 'Doctor declines their attention in the patient who declared DNR' ( $\chi^2=6.605$ ,  $p=.037$ ).

DNR is not part of psychologic, physical, and religiously abandon of patient, it wants to give careful concern and comfort to patient and their family. All treatment must include DNR policy to patient who just before the death. Medical team understand what patient and their family expect to them because patient's autonomy and rights regarding human life are important.

Among the questions that are asking about participants' attitudes on the ethical issues related to DNR and differences in attitudes according to bioethics education, Question 3 ( $\chi^2=9.706$ ,  $p=.008$ ), Question 7( $\chi^2=8.531$ ,  $p=.014$ ), Question 12( $\chi^2=7.256$ ,  $p=.027$ ), Question 14( $\chi^2=7.032$ ,  $p=.030$ ), Question 17( $\chi^2=6.115$ ,  $p=.047$ ), Question 18( $\chi^2=6.605$ ,  $p=.037$ ) are statistically significant. These variable results cannot be compared without any preceding research. The more research paper requires replication studies and extension of research to compare the results for a student-oriented.

The results indicated that ethical attitudes on DNR are statistically significant by participants' general characteristics such as gender, age, religion, and education.

As a result, not only EMT students but also most university students are unsure the decision of DNR[2]. There are lack of information regarding ethical and legal issues, practical policies and guidance of process of DNR. EMT students have a hard time to decide DNR due to several ethical issues more than health care provider; therefore, professional DNR education and DNR guidebook must provide enough information to give them an objective standard.

## 5. Conclusion and Proposal

This study as a descriptive survey attempts to establish the objective foundation for DNR as investigating Emergency Medical Technology students' recognition and ethical attitudes on DNR. The data were collected from 257 of EMT students who are studying in Jeollanam-Do and Jeollabuk-Do. The data were analyzed in frequency,

percentage,  $\chi^2$ -test, and crosstabs by using SPSS 18.0 program.

The results are:

- 1) Both 46.7% of students who complete the bioethics and 42% of student who do not complete the bioethics have similar opinion about DNR. They mainly say that it is required to have DNR because it is not revivable.
- 2) Among the questions that are asking about the attitudes on the ethical issues related to DNR, there are two questions that are most of participants agreed and disagreed. 60.7% of participants agreed ( $\chi^2=7.032$ ,  $p=.030$ ) on the question no.14 which is 'After DNR declaration if family wants continuing treatment, medical team must treat patient such as CPR followed by the families' decision', while 60.7% of participants disagreed ( $\chi^2=6.605$ ,  $p=.037$ ) on the question no.18 which is 'Doctor declines the attention in the patient who declare DNR'.
- 3) The results indicated that ethical attitudes on DNR are statistically significant by participants' general characteristics such as gender, age, religion, and education.

Following proposals will be needed according to the result.

- 1) Mandatory education on the ethical decision should be required in classes and fields.
- 2) Provision of legal regime, ethical system, and DNR guideline with the consideration of social and cultural characteristics should be required
- 3) Many follow up studies will be needed to prepare a countermeasure that is more appropriate to Korean field situations.

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