



Teaching endotracheal intubation on the recently deceased: opinion of patients and families

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Abstract

This study was done to explore the views of patients and their companions concerning endotracheal intubation training on newly deceased patients and the necessity of obtaining their consent in this regard.

In this cross-sectional descriptive analytical study, we used a questionnaire to collect data through structured interviews conducted by the researcher on patient discharge day. A convenient sample of over 18 year old patients hospitalized at a teaching hospital were enrolled, and after receiving patient consent, one of each patient's companions was enrolled in the study as well.

In this study, 150 of the approached patients agreed to participate (response rate = 85.0%); of those, 92 (61.3%) allowed their companions to be enrolled as well. Eighty-three persons (55.3%) in the patient group and 68 persons (73.9%) in the companion group agreed to have endotracheal intubation training on their own bodies after death. Among these consenting patients and companions, 75.9% (n = 63) and 91.2% (n = 62) believed it was necessary to acquire patient consent for this procedure. Obtaining relatives' consent was thought to be necessary by 69.9% (n = 72) of the patients and 72.1% (n = 49) of the companions, even when there was patient prior consent. Therefore it seems that asking the patient's consent for doing educational procedures on their dead body is crucial.

Keywords: *endotracheal intubation, clinical education, informed consent, medical skills*

Introduction

Endotracheal intubation is a life saving medical skill that requires training and practice. One way to teach this skill is through performing it on intubation models. However, despite the significant advances in the design of models, they have limitations in improving the skills of medical students and residents. In one study, physicians who were trained using intubation models were shown to have lower success rates when compared to those who had practiced on animals and patients (1). Endotracheal intubation training on newly deceased patients (EIT/NDP) is practiced commonly (2-5), and studies have shown the success of this method in improving physicians' skills and self confidence (6, 7); however, in terms of patient autonomy and dignity, the method comes with serious ethical issues that have been raised and discussed by bioethicists (8- 11).

Respect for the beliefs and autonomy of patients and their families and considering their wishes are important to maintaining public trust in the medical profession. To date, several studies have examined the issue of consent for teaching intubation on one's own or relatives' bodies after death under supervision of a skilled trainer; in most of these studies, the majority of respondents have approved of the procedure provided that a formal consent is obtained from the deceased or their relatives (12-15).

At present, EIT/NDP is practiced at teaching hospitals in Iran without patient consent or informing their relatives, and there are no rules or guidelines for conducting such procedures on patients' dead bodies. Teaching medicine in inhumane ways is of little worth. Practicing procedures on newly dead patients without their consent is a kind of deception and will reduce medical trainers' moral sensitivity to respecting patients' rights and putting patients' best interest first.

In Iran paternalistic medicine is practiced. Faculty members believe that talking to patients or their families about EIT/NDP would worry them and very few of them would give consent. On the other hand, practicing intubation on newly dead bodies is helpful for providing safer care for patients who need to be intubated, and therefore some believe that it is better to train students in intubation using newly dead patients without obtaining patients' or their families' consent. It is worth mentioning that the human body is highly respected in the Iranian-Islamic culture, and practicing invasive procedures on the patient's body even for educational purposes might be considered a sin. The lack of field studies around this issue in Iran, as well as the importance of the matter and considerable cultural and religious

differences between Iran and Western countries prompted us to explore the opinions of patients and their companions about teaching intubation on the recently deceased.

Methods

Study Design and Population: We conducted a cross-sectional study. The studied population was selected from over 18 year old hospitalized patients at the internal ward of a teaching hospital affiliated with Tehran University of Medical Sciences and their companions from spring 2008 to summer 2010.

Survey Content and Administration: Our data collection tool was a questionnaire designed based on the standardized one by Hergenroeder et al. (13). Their questionnaire contains questions to find out if patients and their families would permit endotracheal intubation training on themselves, if respondents would permit endotracheal intubation training on their family members, and if respondents felt permission should be obtained from the family of the deceased patient prior to performing endotracheal intubation training. We replaced the permission of the family with that of the patient and added a question regarding their attitude about the necessity of obtaining their family's consent as well. The questionnaire consisted of 18 questions. In order to evaluate the validity of the questionnaire we back-translated the translated questionnaire into English and compared it with the original. As it was difficult to get access to patients for retesting the questionnaire, we could not test the reliability of our survey tool. To assess patients' perception of the questionnaire and remove possible ambiguities, we ran a pilot of the first version with 10 patients.

Considering the high proportion of illiteracy among the patients admitted in this hospital, we gathered the data by structured interview. For every one of the participants the same interviewer read out the questions of the questionnaire and filled in the questionnaire based on their response. The interviewer was present on site two random days a week and approached all patients who were discharged that day. The companion was defined as one of the patient's family members most informed of the disease process of the patient and the most involved in the patient's decision making about treatment.

Since companions were asked about teaching intubation on the patient in case of death, we sought patients' consent to enroll their companions. We excluded end stage cases with an expected survival of less than 6 months (according to their physician) and patients with reduced levels of consciousness (at the discretion of the interviewer).

After obtaining patients' and companions' oral consent to participate in the study, first the interviewer thoroughly explained intubation and its importance in training students, the constant supervision of a skilled physician during the practice, and that this educational goal would not cause negligence of the medical team to save a patient's life. The study protocol was approved by the Research Ethics Committee of the Tehran University of Medical Sciences.

Data Analysis: To present results, we summarized our findings in mean and frequency percentage to describe data and used Chi-square and

correlation tests to assess the effect of different variables on the independent variables.

Results

Of the 176 approached patients, 85.0% (n = 150) agreed to participate, and 92 of them allowed their companion to be enrolled as well. All companions consented to participate in the study. In six cases, we had to interrupt the interview because the patient felt uncomfortable answering the questions. A summary of the respondents' demographics are presented in Table 1.

Table 1. Demographics of the patients and companions participating in this study

		Patients	Companions
Total number		150	92
Mean age (standard deviation)		56.4 (16.9)	39.9 (11.9)
Sex n (%)	Men	64 (42.7%)	57 (62.0%)
	Women	86 (57.3%)	35 (38.0%)
Education Level n (%)	Illiterate	51 (34.0%)	0 (0.0%)
	Primary school	54 (36.0%)	22 (23.9%)
	Middle school	12 (8.0%)	30 (32.6%)
	High school	23 (15.3%)	21 (22.8%)
	College	10 (6.7%)	19 (20.7%)
Relation of companion to patient n (%)	Father		2 (2.2%)
	Mother		3 (3.3%)
	Child		67 (72.8%)
	Brother		5 (5.4%)
	Spouse		15 (16.3%)

Eighty-three (55.3%) of the patients and 68 (73.9%) of the companions agreed to EIT on their own bodies under supervision of a skilled physician. However, when the bodies of their loved ones were concerned, 45.1% (n = 65) of the patients and 55.4% (n = 51) of the companions agreed to the

procedure (Table 2). Half of the patients who were against EIT/NDP on their relatives would consent to the procedure if they were aware of their beloved ones' prior consent; this increased the percentage of agreeing people to two thirds of the total (71.5%).

Table 2. The opinions of patients and companions about endotracheal intubation training on newly deceased patients (EIT/NDP)

Question	Patients' response			Companions' response		
	yes	no	total	yes	no	total
Agree to EIT on own body under supervision of a skilled physician.	83 (55.3%)	67 (44.7%)	150 (100%)	68 (73.9%)	24 (26.1%)	92 (100%)
Agree to EIT on a relative's body under supervision of a skilled physician ¹ .	65 (45.1%)	79 (54.9%)	144 (100%)	51 (55.4%)	41 (44.6%)	92 (100%)
Agree to EIT on a relative's body under supervision of a skilled physician, knowing that the deceased had consented to the procedure before death ² .	38 (48.1%)	41 (51.9%)	79 (100%)	17 (41.5%)	24 (58.5%)	41 (100%)

1. Companions were asked if they would agree to EIT on patient's dead body; 2. This question was asked if the response to the previous question was negative.

In terms of allowing their companions to participate, the distribution of responses significantly differed between patients in favor of intubation and those against it. Of the 83 patients who agreed to

have EIT on their own body, 72 patients (86.7%) allowed their companions to be interviewed, while only 32.8% (20/61) of those against it approved of their companions' participation ($P < 0.001$).

To examine the patient-companion response agreement in terms of intubating the patient in case of death, 70.8% ($n = 51$) of the companions of the

72 agreeing patients consented to the procedure, and if they knew the patient would consent, the rate increased to 78.5% ($n = 63$). We found no relationship between agreeing to EIT on one's own body and the age and gender of the patients or companions, but the rate significantly increased with higher education ($P < 0.001$) (Table 3).

Table 3. Association between patient and companion education and their approval of endotracheal intubation training (EIT) on one's own body.

Response	Education						total
	Illiterate	Primary school	Middle school	High school	College		
EIT on one's own body in case of death Yes	28 (54.9%)	39 (51.3%)	25 (59.5%)	35 (79.5%)	24 (82.8%)	151 (%62.4)	
No	23 (45.1%)	37 (48.7%)	17 (40.5%)	9 (20.5%)	5 (17.2%)	91 (%37.6)	
Total	51 (100%)	76 (100%)	42 (100%)	44 (100%)	29 (100%)	242 (%100)	

In terms of the necessity of obtaining patient prior consent for EIT on their bodies after death, 42.4% of the patients and 26.1% of the companions found EIT/NDP absolutely impermissible. Among participants who thought EIT/NDP was acceptable, 75.9% ($n = 63$) of the patients and 91.2% ($n = 62$)

of the companions believed it should be done with prior consent from the patient. Obtaining relatives' consent was thought to be necessary by 69.9% ($n = 72$) of the patients and 72.1% ($n = 49$) of the companions, even when there was patient prior consent (Table 4).

Table 4. The opinions of patients and companions about the necessity of obtaining informed consent from the patient or a relative for endotracheal intubation training (EIT) on a newly deceased patient.

Questions	Patients' response				Companions' response				All participants			
	Yes (%)	No (%)	EIT should not be done (%)	Total (%)	Yes (%)	No (%)	EIT should not be done (%)	Total (%)	Yes (%)	No (%)	EIT should not be done (%)	Total (%)
Necessity of obtaining informed consent from the patient before death	63 (43.7)	20 (13.9)	61 (42.4)	144 (100)	62 (67.4)	6 (6.5)	24 (26.1)	92 (100)	125 (53.0)	26 (11.0)	85 (36.0)	236 (100)
Necessity of obtaining informed consent from patient's relatives if the patient had given consent	72 (50.0)	31 (21.5)	41 (28.5)	144 (100)	49 (53.3)	19 (20.7)	24 (26.0)	92 (100)	121 (51.3)	50 (21.2)	65 (27.5)	236 (100)

Discussion

About half of the patients and two thirds of the companions agreed to have EIT on their own bodies after death under the supervision of a skilled physician. More than eighty percent of the participants believed patient prior consent was necessary for teaching intubation on their own bodies after death, and two thirds of the participants believed relatives needed to consent to the procedure as well.

Our findings were very similar to those reported in similar studies such as the one by Oman KS et al. conducted in Colorado, USA in 2002 in which only 54% had agreed to EIT on their own bodies (15); however, there are considerable differences in some other studies as well. For example, the study

by Hergenroeder et al. at the department of neurosurgery of Texas University in 2007 included 108 patients and their families; 85% of them agreed to EIT on their own bodies, and 76% agreed to the procedure being done on their relatives' bodies (13). In the study by Manifold et al. that was conducted in the United States in 1999, 280 patients and their families were included; 75% of them agreed to have the procedure on their own bodies, and 70% agreed to have it on their recently deceased relatives (14).

Compared to Western countries, the rates of agreement to have EIT on one's own body and their relatives' bodies are much lower among Iranian patients and their relatives. We did not inquire after reasons for disapproval of the proce-

ture; however, possible explanations could be cultural and religious views, differences in satisfaction with hospital service provision, lack of understanding of the importance of EIT in improving physicians' skills, or misconceptions of the procedure, thinking it might harm the corpse.

In terms of the necessity of obtaining patient consent, more than one third of the participants believed EIT was impermissible, and this is a considerably high rate. That is a major difference between our study and the one by Hergenroeder et al. In their study, for the questions regarding the necessity of obtaining consent, participants had to choose yes or no while we added a third option to find out whether participants rejected EIT/NDP regardless of obtaining permission. It seems some participants believe this procedure is dishonoring a Muslim body and do not think that even patient's consent could make it acceptable to perform EIT/NDP.

A direct relationship was observed between education and participants' approval of EIT/NDP, and this supports the role of education for proper understanding of the procedure and its effect on the corpse.

Similar to other studies, we found that the approval rate for EIT on one's relative's body was lower than the approval rate for performing the same procedure on one's own body. This difference could be due to the sense of ownership of one's own body and more freedom to make decisions about it. In addition, emotional attachments do not allow people to approve of EIT/NDP on their loved ones. Thus, measures to obtain patients' consent while they are capable of decision-making can increase their availability for this procedure rather than leaving the decision to their companions after their death.

Among those who found the procedure acceptable, more than eighty percent thought prior patient consent was necessary. If people witness physicians teaching procedures on the deceased without their prior consent, their trust in the medical profession would be at stake. In addition, relatives' awareness of patients' prior consent can increase the chances of their approval of the procedure and reduce the number of people who are strictly against it. We also observed that two thirds of those who approved of EIT/NDP thought it was necessary to obtain both companion consent and patient consent. Certain measures can be taken to increase cooperation in this regard, and make decision making easier for companions when the patient has

already consented. One important measure is public education, which can improve patients' knowledge of the nature of endotracheal intubation as a procedure that does not harm the corpse, and demonstrate the importance of teaching it to medical students. There should also be a means for official declaration of consent for teaching intubation on one's own body similar to organ donor cards.

In this study, most patients who were against intubation on their own bodies did not allow their companions to participate. This can explain why most companions agreed to teaching intubation on their own bodies, and thus, our results concerning companions are less generalizable. Their favorable response could also be due to their better health status.

We had to limit our study to one department only, because directors of other departments were concerned about the fear and anxiety that the study might cause in their patients. Although the hospital was a referral one, generalizing results requires larger studies in other types of patients. Reasons of disapproval were not investigated in this study. In addition, patients' fear of medical procedures and the tangibility of the meaning of intubation can all affect patients' responses, and it is necessary to study these variables in future investigations. Larger studies on the reasons for disapproval of this procedure are recommended.

Conclusion

Based on the findings of the present study, the majority of patients and companions allow EIT/NDP on their body, although they feel permission of both patient and companion should be obtained for this procedure. In order to respect patients' autonomy, obtaining their consent is essential; however, it will not be easy if they do not have a correct concept of teaching procedures on their dead body. Educational campaigns could help to improve their perception and persuade them to have an altruistic role in medical education. Through establishing this public discourse, it would be much easier for health care workers to ask patients' consent for EIT/NDP.

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Competing Interests

All authors declare having no conflict of interest.

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