Withholding and Withdrawal of Life-Sustaining Treatments in critically ill ICU patients: A study on attitude of Physicians of Bangladesh

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Abstract:

Background: This study is a sub analysis of data submitted on behalf of Bangladesh in an International study (ACME 2012) involving physicians working in Asian ICUs.

Objective: To describe attitude of physicians of ICUs of Bangladesh toward withholding and withdrawal of life sustaining treatments in end of life care, to assess factors associated with these observations and to compare the findings especially with those of physicians of low – middle income Asian ICUs.

Method: Self-administered pre-set structured and scenario based survey conducted among 101 physicians working in 38 ICUs of Bangladesh.

Results: For patients with no real chance of recovering a meaningful life, 20 of 101 respondents reported that they almost always or often withheld life-sustaining treatments and 18 of 101 respondents almost always or often withdrew life-sustaining treatments. 44 respondents in our study reported that they almost always or often withheld life sustaining treatments whereas 10 respondents almost always or often withdrew life sustaining treatments. 72% of all our respondents would implement DNR orders. In Bangladesh, religion (Islam) does not influence decision of complying with DNR order requested by family. Our study showed 71% of physicians were more likely to “do everything” if a patient with hypoxic-ischaemic encephalopathy developed septic shock. In our study, physicians were more ready to withdraw vasopressors and hemo dialysis than enteral feeding and intravenous fluids. Physicians from Bangladesh generally perceived more legal risk with limitation of life sustaining treatments because of lack of legislation for such practices. When it comes to limit aggressive lifesaving treatments, Bangladeshi physicians were less likely accede to families request to withdraw them on financial ground.

Conclusion: Like physicians of low-middle income countries of Asia, Bangladeshi ICU physicians’ self-reported practice of limiting life sustaining treatments, role of families and surrogates and perception of legal rights were significantly different than physicians of high income countries of Asia. However unlike physicians from other low income Asian countries, physicians from Bangladesh were less likely to accede to families request to withdraw life sustaining treatments on financial ground.

Key words: ICU physicians, life sustaining treatment, end of life care.

Introduction:

Attitudes of physicians working in Intensive Care Units (ICUs) in Bangladesh toward end of life care practices was studied as part of a multinational study involving Asian ICUs done in May -Dec 2012 by ACME (Asian Collaboration of Medical Ethics) group. The results of the Asian study1 was published in 2015. The aim of that study was twofold. First: Many ethical questions on the use of life sustaining treatments for terminally ill patients in ICUs exist across the world2-5 but scenarios of Asian ICUs was never highlighted in a group. Second: It was deemed necessary to compare a multinational study to be done in Asia with the multinational studies done in Europe and North America6-9 on attitudes of physicians towards end of life.

Asia accounts for at least half of all critically ill patients and half of ICU deaths internationally6. Literature search mentions only a few national studies done on end of life care in ICUs in few countries like Hong Kong7, China8, Pakistan9, India10, Lebanon11 etc. Such study was never done on physicians of Bangladesh prior to the ACME study.

Studies suggest that end of life care practices vary considerably and are influenced by many factors12-14. They include personal attitudes and religious affiliations of physicians15-17, the involvement of patients families18 and organizational characters of ICUs19, social culture20, legislation21 and economic status22 were also found to be important factors.

The ACME study1 described the current attitudes and reported practice of physicians who manage critically ill patients at the end of life with emphasis on the withholding and withdrawal of life sustaining treatments and to evaluate the factors associated with these attitudes. This study involved 16 countries and regions of Asia and in this study total 1465 physicians of 466 ICUs participated. Participation from Bangladesh included 101 physicians of 38 ICUs.

Our study is a domestic sub analysis of ACME study to assess current attitude and practice of physicians working in Bangladeshi ICUs with emphasis on withholding and withdrawal of life sustaining treatments and to evaluate the factors associated with these attitudes.
Methods:
This was a questionnaire survey of physicians who managed patients in ICUs of Bangladesh. Corresponding author of our study approached ICU directors or representatives in person or via e-mail and in turn individual participating ICU physicians were contacted by them or at times individual participating ICU physicians were directly approached to participate.

We defined ICUs as adult units that were capable of providing invasive mechanical ventilation and considered by their hospitals to be ICUs. We included intensivists as well as non-intensivists who are primary consultant physicians of patients in ICUs. We defined an intensivist as a physician who has passed as critical care postgraduate examination or who has postgraduate qualification in other medical disciplines and treats patients with multi-organ failure and is recognized by his or her institution as an intensivist.

The ACME study group developed a study questionnaire for survey which was filled by participating ICU physicians of Bangladesh and selective parts of the questionnaire with its responses were analyzed in our study. The survey initially included fields of responsible demographic characteristics, religion, specialty, ICU and hospital. Responses were ranked on a 5 point Likert scale where relevant.

The survey also included physician responses in withholding or withdrawing life support treatments including cardiopulmonary resuscitation as part of end of life care.

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The perceived frequency of implementing such decisions, and factors relating to the provision of end-of-life care including attitudes to communication with patients, families, and surrogates were explored. Other questions examined factors that respondents considered important for deciding on limitation of life-sustaining treatments, the presence of local policies on end-of-life care and perceptions of legal risk.

Three case scenarios were adapted. The first (case 1) aimed to understand practice and attitudes in situations when prognosis and quality of life are likely to be extremely poor. A second scenario (Case 2) aimed to understand the influence of families’ or surrogates’ views on perceived end-of-life practices and examined whether respondents modified their management on the basis of three hypothetical situations. The third scenario (Case 3) aimed at understanding attitude of Bangladeshi physicians when family or surrogate requests to withdraw life sustaining treatments on financial ground.

Statistical Analysis:
It was an observational study, analytical in nature. Through a preset self-administered questionnaire data were collected from the hospitals with ICUs from all over the country specially from capital city of Dhaka. Data was collected purposively as per availability of the response. Data from public and private, teaching and non-teaching hospital were compiled.

We expressed categorical variables as frequencies (percentage). To dichotomize answers from the Likert scale, we categorized “strongly agree”/“agree” separately from “neither agree nor disagree”/“disagree”/“strongly disagree.” For statistical purpose we only chose “Strongly agree” and “Strongly disagree” as responses on treatments that can usually be withheld or withdrawn.

We aimed to identify factors independently associated with a response that suggested an inclination against limitation of life-sustaining treatments: specifically, non-implementation of DNR (Do Not Resuscitate) orders in case 1 and change in decision to full active support on the family’s or surrogate’s insistence in case 2 and physicians attitude towards families request to withdraw aggressive life sustaining treatments on financial grounds in case 3.

We chose independent variables for the models that were previously shown to affect end-of-life care: hospitals’ and ICUs’ characteristics including policies on end-of-life care and respondents’ personal characteristics and attitudes. These attitudes included factors that respondents deemed important when considering limitation of life-sustaining treatments, their perception of communication with patients and families or surrogates and legal risk.

Data were primarily analyzed by Statistical Package for the Social Sciences (SPSS) version 16 and basic percentage, number of respondents and Standard Error Mean (SEM) were evaluated. Case studies were described with the description of the findings and percentage distribution against various questions. Later the data were studied through Graph Pad Prism 6.0 for further analysis. We have evaluated the
interactions among the group by using one-way ANOVA. We considered a $P$ value of $< 0.01$ as statistically significant and related to the 99% confidence level.

**Results:**

In total, 38 ICUs and 101 physicians participated in the study. All participating physicians happened to be Muslims. Omission of physicians of other religions in our study was unintentional and we did not find any interested physician of other religion to participate in the study.

Most of the respondent of the ICU are above age 50 years and were male predominant when they got admitted in the study. Primary Specialty of the consultants were mostly Internal Medicine 31 (30.7%), followed by Anesthesiology 26 (25.7%), Others 15 (14.9%), Neurology 8 (7.9%), Neurosurgery 5 (5.0%) and so on. 39 (38.6%) respondents worked in ICU with six or less beds. 51 (50.5%) respondents belonged to hospitals with less than 250 beds. 49 (48.5%) respondents came from non-teaching hospital (private funded). (Table 1)

Table 1: Characteristics of respondents

<table>
<thead>
<tr>
<th>Age, year</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;40</td>
<td>28 (27.7)</td>
</tr>
<tr>
<td>40-49</td>
<td>26 (25.7)</td>
</tr>
<tr>
<td>≥50</td>
<td>47 (46.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>89 (88.1)</td>
</tr>
<tr>
<td>Female</td>
<td>12 (11.9)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intensivist</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>45 (44.6)</td>
</tr>
<tr>
<td>No</td>
<td>56 (55.4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary specialty</th>
<th>No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anesthesiology</td>
<td>26 (25.7)</td>
</tr>
<tr>
<td>Chest physician/pulmonologist</td>
<td>4 (4.0)</td>
</tr>
<tr>
<td>Chest surgeon</td>
<td>1 (1.0)</td>
</tr>
</tbody>
</table>

Table 2: Treatments that can usually be withheld or withdrawn

<table>
<thead>
<tr>
<th>Questions</th>
<th>Strongly agree (%)</th>
<th>Strongly Disagree (%)</th>
<th>SEM</th>
<th>Interactions</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enteral feeding</td>
<td>6 (5.9)</td>
<td>27 (26.7)</td>
<td>0.12153</td>
<td>0.9908</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Total Parenteral Nutrition</td>
<td>11 (10.9)</td>
<td>12 (11.9)</td>
<td>0.12626</td>
<td>0.9896</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Intravenous fluid therapy</td>
<td>2 (6.9)</td>
<td>15 (14.9)</td>
<td>0.11780</td>
<td>0.9926</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Broad spectrum antibiotics</td>
<td>11 (10.9)</td>
<td>13 (12.9)</td>
<td>0.12304</td>
<td>0.9726</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Diuretics</td>
<td>5 (5.0)</td>
<td>20 (19.8)</td>
<td>0.11375</td>
<td>0.9932</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Oral suctioning</td>
<td>7 (6.9)</td>
<td>22 (21.8)</td>
<td>0.12237</td>
<td>0.9891</td>
<td>&lt; 0.0001</td>
</tr>
</tbody>
</table>

The majority of respondents reported that life-sustaining treatments, including Cardiopulmonary resuscitation (CPR), Mechanical ventilation, Vasopressors/ inotropes, Hemodialysis, Tracheotomy and Endotracheal intubation, could usually be withheld or with drawn in end-of-life care, but not Enteral feeding, Total parenteral nutrition, Intravenous fluids, Broad spectrum antibiotics, Diuretics and Oral suctioning (Table 2).
Case 1 (TABLE 3) describes the scenario of a 55-year-old woman severe hypoxic-ischaemic encephalopathy after cardiac arrest. The commonest responses were to decide on treatment after reaching a consensus with other physicians, to implement DNR orders, to keep the patient in the ICU (with or without tracheostomy) and start further interventions if a complication occurs even when stable, and to maintain mechanical ventilation and start antibiotics and vasopressors if the patient developed pneumonia and septic shock.

Table 3: Case Studies

Case 1 Scenario Respondents, Overall %

A 55-y-old woman was resuscitated from a cardiac arrest due to ischemic cardiac disease and admitted to the intensive care unit (ICU) with severe post anoxic lesions. Twenty-four hours later, she has decerebrate movements and the evoked potentials are absent. The consensus (including the senior neurologist) is that her best possible outcome is a persistent vegetative state. She has no close relative or advance directive.

Question 1. Which process do you follow to decide on the treatment for this patient in the ICU?

(A) Decide by yourself 9 (8.9)
(B) Decide after a consensus is reached with other physicians 75 (74.3)
(C) Decide after discussions involving other physicians and nurses 11 (10.9)
(D) Refer to the ethical committee in your hospital 3 (3.0)
(E) Refer to court 3 (3.0)

Question 2. Is this process likely to result in do-not-resuscitate (DNR) orders being applied in the event of recurrent cardiac arrest?

(A) No 29 (28.7)
(B) Yes, verbal DNR orders 34 (33.7)
(C) Yes, written DNR orders 38 (37.6)

Question 3. The patient remains absolutely stable for 5 d and, although still receiving mechanical ventilation, can breathe spontaneously. What would be the usual strategy in your institution?

(A) Keep the patient in the ICU (with or without tracheostomy) and start further interventions if a complication occurs 40 (39.6)
(B) Keep the patient in the ICU (with or without tracheostomy)—“wait and see”—but withhold therapy if a complication occurs 18 (17.8)
(C) Keep the patient in the ICU and start increasing doses of morphine or sedatives with the intent to decrease ventilatory conditions (“terminal weaning”) 1 (1.0)
(D) Perform a tracheostomy and transfer the patient to the general ward for continued care 26 (25.7)
(E) Extubate her and transfer the patient to the general ward for continued nursing care 16(15.8)

Case 2 (Table 4) describes a 50-year-old man with irreversible and likely terminal disease, with the respondent faced by 3 hypothetical surrogate situations. Where no family or surrogate or advance directives exist, 32.7% of respondents would continue full life-sustaining treatments including CPR, but if a family or surrogate insisted on withdrawal of therapy, this proportion decreased to 8.9%. If the family or surrogate insisted on the most active treatment, it increased to 59.4%. Respondents who did not agree that the expected long-term quality of life was a factor to consider for limitation of life-sustaining treatments, who were uncomfortable discussing limiting life-sustaining therapy with families or surrogates, and who perceived greater exposure to legal risk with DNR orders were most likely to change their decision.

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Table 4: Case Studies

Case 2 Scenario

A 50-y-old patient suffering from chronic obstructive pulmonary disease for many years has been admitted repeatedly due to respiratory failure, and has required prolonged ventilatory support. This time he is suffering from respiratory failure again, together with prolonged cardiac arrest. After 72 h, he is still deeply comatose and requires ventilatory support.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>No Family or Surrogate or Advance Directive</th>
<th>Family or Surrogate or Advance Insists on Withdrawal of Therapy</th>
<th>Family or Surrogate or Advance Insists on the Most Active Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue full active support treatment including CPR</td>
<td>33 (32.7)</td>
<td>9 (8.9)</td>
<td>60 (59.4)</td>
</tr>
<tr>
<td>Continue the most active support treatments except CPR</td>
<td>40 (39.6)</td>
<td>23 (22.8)</td>
<td>24 (23.8)</td>
</tr>
<tr>
<td>Continue current treatment but no complicated treatments (eg, hemodialysis, surgical intervention)</td>
<td>23 (22.8)</td>
<td>25 (24.8)</td>
<td>13 (12.9)</td>
</tr>
<tr>
<td>Continue current treatment but no additional treatments (eg, antibiotics for sepsis)</td>
<td>2 (2.0)</td>
<td>9 (8.9)</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Stop mechanical ventilation (allow the patient to die)</td>
<td>1 (1.0)</td>
<td>10 (9.9)</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Stop all treatment (intravenous infusion, nasogastric feeding) except mechanical ventilation</td>
<td>2 (2.0)</td>
<td>15 (14.9)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Obtain ethics consultation</td>
<td>0 (0.0)</td>
<td>10 (9.9)</td>
<td>2 (2.0)</td>
</tr>
</tbody>
</table>

Table 5: Case 3

A 64 year old female patient with severe pneumonia was admitted to your ICU 3 days ago and is receiving mechanical ventilation, intravenous vasopressor infusion and antibiotics in your ICU. She has coagulopathy and mild renal dysfunction, not requiring dialysis. Other organ function is within normal limits. Her neutrophil count remains high, but the temperature is decreasing. You advise the family that the patient has a reasonably good chance of recovery. The family repeatedly and forcefully express that they are concerned about the increasing cost (financial burden) of the patient’s stay in ICU. They insist on immediate withdrawal of life-support treatment to avoid further medical bills. Do you withdraw or withhold life support therapy?

| Almost Always | 10 (9.9) |
| Often | 22 (21.8) |
| Sometimes | 27 (26.7) |
| Seldom | 8 (7.9) |
| Almost Never | 34 (33.7) |

Case 3 (Table 5) shows that Bangladeshi physicians are less inclined to limit aggressive life sustaining treatments on financial ground and usually in some form or other (56%) accede to requests by families to withdraw such treatments and 34% never accede to such request.

Discussion:

It is important to understand the variability in physicians’ practice of withholding and withdrawal of life sustaining treatments because it affects how patients lose their lives.

Phua et al. reported that for patients with no real chance of recovering meaningful life, 70.2% Asian respondents from ACME study claimed that they almost always or often withheld life sustaining treatments, 20.7% almost always or often withdrew life sustaining treatments. Whereas respondents from Bangladesh had 44% and 10.1% responses under similar scenario responses respectively.

In a hypothetical setting of hypoxic-ischaemic encephalopathy, 72% of all respondents would implement DNR orders (Table 3). All our respondents were Muslims (although 10% population of Bangladesh are Hindus, Buddhists and Christians) and religion of our respondent doctors did not seem to affect implementation of DNR orders. According to ACME study, Asian respondents were less likely (82%) to implement DNR orders than physicians from North America, Australia and Europe (all>90%).

Our study participants were more likely (71%) to “do everything” if a patient with hypoxic-ischaemic encephalopathy developed septic shock (Table 3) than those in the United States (<40%), Southern Europe (<30%), Canada (<20%), and Australia and Northern and Central Europe (< 10%).

Our study participants like most physicians participating in ACME study were more ready to withdraw vasopressors and hemodialysis than enteral feeding and intravenous fluids (Table 2). Although American guidelines recommend reviewing the role of artificial nutrition for the dying, Islam views nutritional support as basic care and not medical treatment.

Obviously this view point was reflected in the response of study participants in our study as the participants were all Muslims.

According to Phua et al., physicians from low–middle income countries and regions were generally less likely to limit CPR, mechanical ventilation, vasopressors and inotropes, tracheostomy and hemodialysis—all of which are typically
seen as fairly aggressive artificial life support—than physicians from high income countries and regions (even though they were more likely to limit more routine treatments like enteral nutrition, intravenous fluid therapy and oral suctioning). Finding from our study even when considered separately from other low-middle income countries of ACME study are similar in these respects (Table 2). There are some possible explanations for these observations. Firstly, physicians from high-income countries in Asia from the ACME study are more exposed to practice of palliative care with intensive care and this has resulted in more limitation of life sustaining treatments for terminally ill. In contrast palliative care is significantly under developed in low income counties and regions. This observation is equally true for Bangladesh. Secondly physicians from low-middle-income countries like Bangladesh generally perceived more legal risk with limitation of life sustaining treatments because of lack of legislation for such practices. On the other hand high-income countries in the ACME study do have laws or published professional guidelines which support limitation of life sustaining treatments for the terminally ill.

Bangladeshi physicians like those of low-middle-income countries and regions are less inclined to limit aggressive lifesaving treatments and were also less likely to accede to families request to withdraw them on financial ground (Case 3 Table 5) in contrast to other low-income Asian counties of ACME study. However if family or surrogate gives written request to limit life support particularly Intubation, the patient is discharged to the custody of family so that hospital does not have to bear the responsibility of death resulting from discontinuation of intubation. Variations across Asian countries is extreme, with majority of Chinese physicians reporting that they would almost always or often withhold or withdraw these treatments on financial grounds. In conclusion, Bangladeshi physicians were more likely to limit Life sustaining treatment compared to Asian physicians in general in patients with no real chance of recovering meaningful life. In Bangladesh religion (Islam) does not influence decision of complying with DNR order requested by family. Attitude of Bangladeshi physicians working in ICUs are fairly similar to those of Low-Middle income countries of Asia. Palliative care in ICU is poorly practiced in Bangladesh and this is partly responsible for lesser tendency of limitation of life sustaining treatment by physicians here. Absence of legislation on legality of withdrawing or withholding life sustaining measures is another reason for such trend by Bangladeshi physicians. Lastly our study shows that Bangladeshi physicians will do almost everything for critically ill patients, more than their Asian, North American and European counterparts.

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