

Futility has no utility in resuscitation medicine

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Abstract

“Futility” is a word which means the absence of benefit. It has been used to describe an absence of utility in resuscitation endeavours but it fails to do this. Futility does not consider the harms of resuscitation and we should consider the balance of benefit and harm that results from our resuscitation endeavours. If a resuscitation is futile then any harm that ensues will bring about an unfavourable benefit/harm balance. However, even if the endeavour is not futile, by any definition, the benefit/harm balance may still be unfavourable if the harms that ensue are great. It is unlikely that we will ever achieve a consensus definition of futility and certainly not one that is applicable to every patient undergoing resuscitation. In the meantime our use of the term “futile”, in the mistaken belief that it tells us whether it is worth resuscitating or not, has no utility as it will never succeed in telling us this. Furthermore we risk causing offence by use of the term and we risk harming the patient’s autonomy by using futility as an overriding force. Instead we should consider the utility of our endeavours, for which an assessment of the harms of resuscitation should be added to our considerations of its benefit. This balance of benefit and harm should then be evaluated as best it can be from the patient’s perspective. The words futile and futility should be abandoned by resuscitacionists.

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Introduction

The word “futile” is derived from the Latin word “*futilis*”, meaning that which easily melts or pours but its common usage stems from the Greek legend in which the daughters of Danaus, the King of Argos, murdered their husbands and for their crime, were condemned to collect water for eternity in leaking buckets.^{1,2} To arrive at the destination with an empty bucket when the intention of the journey was to bring water, gives a definition of futile as something which is “useless” or “ineffectual”.³ Futility then, is the nominal form which describes a uselessness or an absence of any effect. Specifically it describes the absence of any desired effect and if we assume that the desired effect of medical interventions is to benefit the patient, (by direct benefit, by avoidance of harm, or by respecting the patient’s autonomous choices), then futility describes an absence of benefit.

The word “utility” is unrelated in derivation and in meaning. It describes “usefulness” or “profitableness”,³ and in doing so it incorporates an evaluation of benefit over cost. Futility is not the antonym to utility as many might use it, as futility describes an absence of benefit without a consideration of cost.

In recent years the concept of futility has been widely and deeply discussed. In this paper I will briefly review how the concept of futility is employed and the definitions and interpretations of it; I will further argue that our attempts to define futility as a measure of poor utility have “muddied the waters” in ethical decision making in resuscitation medicine to such an extent that at times we are providing resuscitation interventions which bring about more harm than good.

Futility - its use and abuse

Between 70%⁴ and 90%⁵ of intensive care unit patients who die do so as a consequence of a decision to withhold or withdraw life support. This percentage has increased significantly over time⁵ and the most common reason cited for the decision to withhold or withdraw treatment is a perception that the patient has a poor prognosis.⁴

The propriety of withholding and withdrawal of life support has been supported by groups such as the Task Force on Ethics of the Society of Critical Care Medicine and in a number of legal decisions. Cardiopulmonary resuscitation (CPR) is the therapy most commonly withheld and mechanical ventilation is the therapy most commonly withdrawn; most intensive care unit physicians recommend withholding and withdrawal based on a perception of futility.⁶

Emergency physicians resuscitating children are likely to use physiological measures of futility such as a low blood pH, and recognise indicators of poor outcome, such as co-morbidities and prolonged cardiac arrest, as factors influencing decisions to terminate resuscitative efforts.⁷

Attempts to measure the futility of a resuscitation based on scoring of physiological or other prognostic features have been largely unsuccessful^{8,9} and although research continues into systems for prospectively grading the futility of a resuscitation, as yet we have no consensus definition of futility upon which such a gradation can be built.

Varying definitions of futility have been espoused including “failing to prolong life”, “failure to achieve the patient’s wishes”, “failing to achieve a

physiologic effect on the body” and “failure to achieve a therapeutic benefit for the patient”.²

Waisel and Truog¹⁰ summarise three different conceptual definitions of futility. Physiologic futility exists when a procedure cannot bring about its physiologic objective. For example, when cardiopulmonary resuscitation produces no pulse or when transfusion produces no blood pressure, then these interventions are futile from the perspective of a physiologic futility definition. It is argued that the adoption of a physiologic futility measure minimises the risk of unilaterally imposed physician value judgments as the physiologic measure is independent of physicians’ concepts of quality of life or good outcome. Schneiderman and colleagues argue that the physiologic futility concept is not a “value free” judgment but that it is in fact a “value choice” and that the choice that is made is to value the measurement of organ function rather than the value of the outcome for the patient as the patient might perceive it.^{11–13} They present a “benefit-centred” definition of futility as consisting of quantitative and qualitative considerations. The quantitative estimate of futility is one in which an intervention is considered futile if it has failed in the last defined number of times attempted, and they suggest 100 successful attempts as the threshold for this definition. The qualitative component describes futility as occurring where the patient’s resulting quality of life falls well below the threshold considered minimal by general professional judgment. Specifically they list treatments which merely preserve unconsciousness or cannot end dependence on intensive medical care as qualitatively futile. Murphy and Finucane propose the definition of operationalising futility which is defined as: “treatment that is so unlikely to succeed that many people—professional and lay persons—would consider it not worth the cost”. They argue that this operationalises the concept of futility and precludes individual caregivers from having to make qualitative or quantitative value judgments.¹⁰

More nebulous definition

The American Thoracic Society has adopted a more conservative but more nebulous definition, claiming that an intervention is futile if it is “highly unlikely” to result in meaningful survival.¹⁴ The American Thoracic Society has therefore adopted a mix of both quantitative (highly unlikely) and qualitative (meaningful survival) measures, but without offering a practical definition of either.

The American Heart Association has adopted an extreme quantitative definition, suggesting that cardiopulmonary resuscitation is futile when “there have been no survivors reported under the circumstances in well designed studies”.¹⁵ This definition allows any cardiopulmonary resuscitation intervention which has ever produced a survivor reported in a well designed study to be considered as non-futile. Superficially this definition seems extreme and it appears to support the use of resuscitation endeavours in situations where they are likely to bring more harm than good; however, it is

consistent with our definition of futility, ie an absence of benefit.

The Critical Care Society suggests that treatments should be defined as futile only when they will not achieve their intended goal, and makes the very important additional comment: “treatments that are extremely unlikely to be beneficial, are extremely costly or are of uncertain benefit, may be considered inappropriate and hence inadvisable, but should not be labelled futile”.¹⁶

Schneiderman and colleagues stress that futility is the absence of a benefit for the patient and not the absence of a physiological effect. Treatment which fails to provide a benefit, even when it produces an effect, should be deemed futile.¹¹

Perceptions of futility

Physicians use perceptions of futility to guide decision making when starting or continuing life-supporting endeavours yet there is no consensus definition of what futility is. Gillon discusses the complexity of attempts to define futility. “It involves assessments of outcomes in terms of value free descriptions (for example whether or not restoration of heart beat is possible); in terms of probabilities (how likely or probable are the outcomes) and in terms of values (how valuable or otherwise are the outcomes, and according to whose values—patients’ or their surrogates’, doctors’, and other health professionals’, managers’ or societies’ values?).”¹⁷

Futility is a prospective appreciation of something which will be viewed as unsuccessful in retrospect. Futility therefore is a prediction. For the resuscitator to use the concept of futility in a specific circumstance, he or she must not only battle with the varying definitions of it but must also consider how these relate to the patient undergoing resuscitation. Out-of-hospital cardiac arrest is a reasonably homogenous insult in that the majority of such events are primary cardiac events due to a ventricular tachyarrhythmia. As a consequence we have been able to gather data regarding survival rates from out-of-hospital cardiac arrest and we have been able to determine a number of factors which influence survival from this.¹⁸ On the basis of this data we can make a reasonable prediction as to the likelihood of resuscitation being successful in individual circumstances and from this our decision making can be guided.¹⁹ For example, an elderly nursing home resident with chronic airways disease, ischaemic heart disease and progressive dementia, who has an unwitnessed cardiac arrest and waits ten minutes before defibrillation is available will not leave hospital alive. However, a middle-aged, previously well victim of a cardiac arrest in a community has about a one third chance of going home again if the resuscitation is prompt and efficient. However, prediction of outcome from those patients who fall between these two extremes is quite difficult and even if we can predict, for example, a ten per cent survival rate we do not know whether this patient in front of us is one of the ten per cent or one of the ninety per cent. So no

matter what the quantitative definition of futility the quantitative prediction of success is difficult when considering the individual undergoing resuscitation. However, the qualitative predictions are even more troublesome. Quality of life is hard to measure, it is difficult to predict (except to say that it is likely to be worse than prior to the resuscitation) and even if we could measure it accurately and predict it reasonably, determining the value of this prediction of the measure to the individual in question is likely to be impossible.

An unfortunate consequence of the inability to define futility, and to use it in the management of an individual, is that discussion has not been allowed to progress to consideration of the harms of resuscitation and, in particular, to the ratio of harm to benefit from the perspective of the individual in question. In other words, we have insufficiently considered the utility due to an obsession with futility.

The harms of resuscitation

Jennett^{20, 21} identifies six types of inappropriate use of technology, five of which I will adapt to describe the harms that may be a consequence of resuscitation interventions. The first harm of resuscitation is if it is unnecessary because the patient's condition is insufficiently serious to justify it. If a patient is given aggressive resuscitation when he would have got by without it, then the harms as a consequence include pain and other discomforts for the patient, iatrogenic illness and unnecessary use of limited resources, thereby depriving others in need of these resources.

The second harm of resuscitation is if it is unsuccessful because the patient's condition is too far advanced. When the patient is too sick for the resuscitation to have the desired effect then the harms that ensue include physical discomfort, loss of dignity, prolonged death and survival with an unacceptable quality of life. Harms to the family include unfulfilled hope, loss of control of a loved one's destiny, a cost of lost earnings while at the bedside and the cost of supporting a disabled survivor. The harms to the health care workers include frustration and sadness at lack of success, guilt at inflicting harm and the opportunity cost of being unable to treat others waiting for resources. The harms to the community include the loss of resources to treat others, the false perception that resuscitation offered hope and the worry that death must be preceded by a loss of dignity.

The third harm of resuscitation is if it is unkind because it prolongs a poor quality of life. If a quality of life ensues which is unacceptable to the patient or the family then an obvious and tragic harm has resulted.

The fourth harm of resuscitation is if it is unwise because it diverts resources from alternative health care activities that would bring more benefit to other patients. Resuscitation is a significant user of resources. If resuscitation is unsuccessful and beneficial health care activities are not proceeding due

to insufficient resources then resuscitation is causing significant harm.

The fifth harm of resuscitation is if it is unwanted because it is against the wishes of the patient. A valid do not resuscitate order written by or negotiated with the patient, or consent declined by a competent patient, must be given due consideration in keeping with the principle of respect for autonomy. Furthermore, if there is no advance directive and if the appreciation of the balance of benefit and harm is clearly unfavourable then the patient's views should be ascertained, as best they can be, as to whether he considers it worth taking the risk. To resuscitate without regard for the patient's explicit or perceived wishes is a harmful disrespect for the patient's autonomy.

In addition to the harms of resuscitation, the use of futility as the driver for withholding or withdrawing life-supporting treatments brings harms of its own. Gillon discusses the pejorative nature of the term futility.¹⁷ "[It] carries with it a strongly negative connotation Staff are likely to be blamed even more, if they not only deliberately withhold or withdraw such attempts before death has actually occurred, but then, as it were, rub salt in the emotional wounds by using pejorative terms such as 'futile' to describe the rejected attempts to preserve life." The concept of saving the life of a loved one described in terms taken to mean "useless", or a "waste of time" is understandably offensive, particularly if the patient or surrogates support life-saving intervention.

Schneiderman and colleagues, six years after proposing their quantitative and qualitative definitions of futility, discuss a number of criticisms of their original proposal including the criticism that "medical futility is simply an attempt to increase the power of the physician over the patient and to repeal hard gained advances in patient autonomy".²²

Halliday describes the attempt to define futility as part of a three-way struggle for control within and around the practice of medicine.² Within the struggle are the patients wielding their rights to autonomy, the physicians with objectives which might be considered paternalistic, and the funders with financial incentives to limit the interventions undertaken. Futility is used as the "trump card" which "frees the physician from the obligation to provide medical treatment",¹¹ despite a desire, from the patient or surrogates, to have the treatments provided. After all, no patient can demand an intervention which is futile.

Swanson and McCrary, in a survey of 301 physicians practising in academic medical centres in Texas, concluded that some physicians, particularly those with an attitude of extreme legal defensiveness tended to define futility in a manner that would maximise the physician's latitude justifiably to oppose patients' preferences, suggesting that some physicians assume an adversarial position in their consideration of medical futility issues.²³

To use futility as a "trump card", to disregard or override the autonomous wishes of patients, even if

the definition of futility is true and the prediction of it is accurate, is harmful simply by virtue of the disrespect for the patient's autonomy. This harm, it could be argued, is outweighed by the harm of pursuing a treatment without benefit, but it must still be considered in the balance of benefit and harm which defines the utility of the treatment options. To manipulate futility, within the leeway of variable and uncertain definitions of it, in order to win against an opposition based on patient autonomy, is to display an immoral attitude.

Conclusion

Futility is a word which means the absence of benefit. Attempts to define it and predict it have "muddied the waters" of decision making in resuscitation medicine to such an extent that the classification of futile has been used to separate those resuscitations not worth pursuing from those which are.

With resuscitation, as with other medical interventions, we should consider the balance of benefit and harm that results. If an endeavour is futile then any harm that ensues will bring about an unfavourable benefit/harm balance, however, even if the endeavour is not futile, by any definition, the benefit/harm balance may still be unfavourable if the harms that ensue are great.

Variations of interpretation, prediction and value judgments mean we are unlikely ever to achieve a consensus definition of futility and certainly not one which has application to every patient undergoing resuscitation. In the meantime our use of the term "futile", in the mistaken belief that it tells us whether it is worth resuscitating or not, has no utility as it will never succeed in telling us this. Furthermore, we risk offence and harms against the patient's autonomy by using it. The words "futile" and "futility" should be abandoned by resuscitators for these reasons.

Instead we should consider the utility of our endeavours, for which an assessment of the harms of resuscitation should be added to our consideration of its benefit and this balance of benefit and harm should be evaluated as best it can be from the patient's perspective.

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