Dysthanasia

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Delaying the Process of Death through Treatment Stubbornness

By

J. Filipe Monteiro

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To

My patients, for their suffering in the illness

The memory of my parents, Agostinho and Elvira, for their teachings,
that were a lighthouse across my life’s path

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FOREWORD

Throughout most of my career as a pneumologist at Santa Maria, Lisbon University Hospital, I worked in a respiratory intensive care unit as a resident, assistant, consultant, and finally as an overall coordinator. The unit began operating in the mid-eighties and, at that time, most of our patients had acute conditions, with all sorts of pathologies, but with a common denominator: respiratory failure. A large percentage of these patients required ventilatory support. As the years went by, due to many factors, the pattern of patients admitted to the unit changed from acute status to predominantly acute-on-chronic cardiorespiratory failure, requiring invasive or non-invasive ventilatory support. While analyzing this patient trend, I realized that some patients who had spent a larger than average overall number of days in hospital, did not survive. Moreover, the resources spent on these patients were also significantly higher. There were many doubts, in the staff's mind if at least in some cases it was not a situation of dysthanasia (from Greek, making death difficult). At the heart of this problem were a few questions: when, how, and who should decide to shift the target of treatment of the patient from cure to care? Further study, research, and analysis of this issue ended sometime thereafter with an MSc degree in bioethics and a dissertation on dysthanasia. The degree did not clear all my doubts but had the virtue of clarifying the reasons for my uncertainties.

The concern and uneasiness about treating patients in the end-of-life stage has been an object of apprehension in the history of medicine. In Western civilization, the arguments and controversies concerned with treatment limitations can be traced to Ancient Greece, as will be seen in the next chapters; but it is with the provision of modern medical technologies, and its uncritical application, that the problem of treatment stubbornness emerges. It should be considered that to withhold or withdraw treatment will imply, almost certainly, a "death sentence" and as such there should not be any margin for error. However, medicine is not a science of certainties but rather of probabilities and therefore errors may always occur. How do we solve this dilemma?

The minimization of medical error in treatment limitations depends individually on the knowledge and the experience of the physician and, globally speaking, on research in intensive medicine. So far as the research is concerned, the objectives are clinical and biological markers of treatment futility; in short, markers that could clearly indicate that death is assured no matter the treatments prescribed by doctors. Unfortunately, in the era of evidence-based medicine, there are very few studies pointing to when the maintenance of treatment is, beyond any reasonable doubt, a situation of dysthanasia.

LIST OF ABBREVIATIONS

APACHE	Acute Physiology and Chronic Health Evaluation
ATS	American Thoracic Society
DNR	Do not resuscitate
GOK	Greek Orthodox Church
ICU	Intensive Care Unit
ICM	Intensive Care Medicine
LODS	Logistic Organ Dysfunction Score
MODS	Multiple Organ Dysfunction Score
MPM	Mortality Prediction Model
NHS	National Health Service
ODIN	Organ Dysfunction and Infection System
OTA	Office of Technology Assessment
QALY	Quality Adjusted Life Years
SAPS	Simplified Acute Physiology Score
SOFA	Sequential Organ Failure
WMA	World Medical Association

CHAPTER ONE

INTRODUCTION

At the dawn of the third millennium of the Christian era, medical science was faced with various bioethical dilemmas, by far and large because of the incredible technological evolution whose horizons exceeded human imagination. However, the human skills to intervene and change the natural course of life have its own costs that somehow reflect dialectic reasoning within techno-science. In the various fields of medicine, from genetic engineering to fertility medicine and from organ transplants to prenatal medicine, medical research and its subsequent practical application is at the root of many bioethical dilemmas. The "miracles" of science, while changing the references and traditional values that link life and death, modify or at the very least unsettle the codes of medical practice, and are an upcoming cause of anguish and yearning for all who deal with the human life, from birth to death. Some of these conflicting issues are cyclical key strengths of news in the mass media and are sometimes presented in alarming and bombastic tones. However, in a few cases, they give rise to a detailed consideration and analysis of the topic of discussion. Society, in its various quadrants, not being totally divorced from bioethical problems, does not see in them something that is of concern in their daily lives. Even in the medical establishment, despite some interest in this relatively new subject that is bioethics, the time and space spent on the discussion of these topics seem to be less than what may be reasonably expected.

From my point of view, several facts can be pointed out as the proximate cause for this attitude, but the segmentation and fragmentation of knowledge seems to be the immediate reason for this posture of alienation. Although end-of-life ethical dilemmas exist in almost every area of sub specialization in medicine, it is in intensive medicine that various problems concerned with end-of-life bioethics are focused. The uncertainties and sometimes the torment of treatment decisions increase in proportion to the existing technical and scientific resources. The primary goal of intensive medicine units, with all the advanced technologies at their disposal, is to prolong life. However, after several days or weeks, when the prognosis becomes unfavorable, it is problematic and demanding for the staff to change their initial objectives, that is, from cure to care. This challenging process may itself lead to several ethical dilemmas in intensive care medicine.

From the numerous daily ethical concerns of an intensive care unit (ICU), dysthanasia or medical futility—a situation in which there is an "excessive" treatment in relation to the expected prognosis—is in my opinion the one that results in more constraints and discussion among ICU doctors than any other. For the doubts that it raises (who, when, and how the "excessive" treatment is defined) and the claims it involves (life versus death with dignity), dysthanasia is an ethical concern that is felt and lived immensely by all those who are undertaking end-of-life treatment decisions in their daily practice.

It is well known that ethics is the art of moral reasoning. In pre-modern times, in the Judeo-Christian civilizations of the West, God was the alpha and omega of morality and thus ethics had a theological essence and could not be conceived of as something independent of religion. This submission of morality to religion was rejected by modern societies and was re-established based on human rationality. It is this vision of society, organized ethically in conformity with the principles of human rationality that is responsible for the historical leap of democratic modernity.

In this analysis about dysthanasia, the starting point is a broad definition of this concept and the underlying rationale for this dilemma as well as a historical outline from Ancient Greece until the present day. A medical act is strictly ruled by precepts and codes of conduct. To understand any deviation—as is the case with dysthanasia—it is essential to dissect this procedure. It is also relevant to perceive and interpret the role of prognostication in treatment decisions. Considering that there is a good reason for all behavior that deviates from the norm, I tried to find a reasoned justification for this behavior considering bioethical principles (Beauchamp and Childress principles), that are a part of the deontological code that should regulate the practice of medical conduct. In addition to analyzing the fundamental principles, there is also a reflection and discussion about the discrepancy that may arise between the doctor's decision and patient autonomy.

The medical procedures, mainly those found in intensive medicine, which can ultimately lead to the process of dysthanasia, are also dissected and analyzed. Further reasons to explain dysthanasia are explored using the basic philosophical concepts of the theory of knowledge, the dialectic of techno-science, and axiology. Considering that one of the driving factors in dysthanasia is a denial or refusal to accept death as part of the biological evolutionary process, a tentative attempt was made to understand dysthanasia through a brief assessment of death across anthropological, psychological, and cultural fields. In this journey through dysthanasia, family involvement at a time of great emotional suffering is not overlooked. The way society views this problem, whether through official or academic and scientific organizations, also deserves special attention.

In a separate chapter, various religious texts and documents in relation to the end-of-life are presented in a matter of utmost delicacy. From various present-day ethical issues, euthanasia, perhaps the most controversial, delicate, and fracturing theme, is analyzed from the perspective of the backlash regarding dysthanasia. The lack of clinical or biochemical markers turns prognostication in the process of death into a matter of uncertainty. The lack of tools turns the decision about treatment limitations into a challenging and painful decision. Consequently, until the markers of medical futility become a quotidian appliance, the easiest pathway for the ICU physician is bound to be treatment stubbornness, and consequently dysthanasia will be a reality in intensive care medicine.

CHAPTER TWO

THE CONCEPT AND THE DILEMMA

The Concept

Throughout human history, death has been analyzed from various perspectives. From historical to sociological to theological, there is not a single quadrant of science or art that has not focused on death. In medicine, end-of-life care is made up of two components: the process of death and the moment of death, and it is fundamental to untangle them clearly. The process of death is a time wherein the living person has been diagnosed with an illness that, with all the existing indicators, will lead to his death in a relatively short span of time. In the health sphere, it is subject to responsibilities and assurances from health professionals. The physicians, with the technological means at their disposal, can hasten or prolong life. Being alive, the patient lives and is nourished in this time of hope. On the other side, death or moment of death belongs to the realms of the unknown. It is impossible to describe it. It is a moment of irreversibility.

In this context, the word dysthanasia has its roots in Greek—*dys*, difficult in medical terms and *thanatos* meaning death— while in common language it means to delay, as much as possible, the process of death. Other terms that are often used as synonyms, although conceptually slightly different, are treatment stubbornness, therapeutic doggedness, or treatment futility. While using the word dysthanasia, the emphasis is on the process of death, while in its synonyms the focus is on persisting with a cure-oriented treatment decision, whose payoff may prolong the process of death. When framing and analyzing dysthanasia from the perspective of a medical act, it can be understood as an attitude of excessive treatment in relation to the clinical condition and its expected prognosis. Another plain and basic definition would be one that considers a prescribed treatment that offers no feasible chance of obtaining any benefit for the patient. An impediment to this definition is that it is a subjective definition that has the extremely delicate task of demarcating the two sides, namely, life and death. Such a decision cannot rest on the subjective reasoning of the decision maker. However, when considering reasoning with the three components of a medical procedure, the diagnosis, the treatment, and the prognosis, dysthanasia can be considered as a deviation from a medical act, since, considering deontological precepts, treatment should consider the expected prognosis. The use of the expression “proportional” when considering treatment and prognosis, was first used by the Catholic Church and will be explained in a future chapter.

The term dysthanasia should be evaluated in a time-space setting and with reference to the technical resources available, since the barrier between proportional and disproportional means depend on the institution, technological accessibility, and the technical knowledge and skills of the physician himself.

The use of the term futile has raised some controversy. By definition, futile refers to anything that is ineffective or incapable of producing any useful outcome. In the context of life-sustaining treatments, futile treatments can, at least in some cases, prolong life and as such cannot be considered as ineffective. However, this prolongation of life can be without any cognitive capacities and the patient may be confined to an intensive care unit, which does not seem to be the aim of Medicine. In philosophical terms, since this is a value judgment, it is inherently difficult to reach a consensus. Some authors make a distinction between qualitative and quantitative futility (Schneiderman, Jecker, and Jonsen 1990). Quantitative futility is based on statistical presumptions that consider a treatment futile when the last 100 cases of a certain medical treatment for a specific situation have been unsuccessful. Considering these criteria, few cases can be considered as futile. Qualitative futility is related to a treatment that maintains an unconscious patient or does not avoid his total dependency in relation to the intensive care measures. The concept of the effect and benefit of a treatment has also influenced the definition of dysthanasia. Those who view this perspective consider that there is no ethical obligation in prescribing any treatment even if it influences, in some ways, the process of death. This is the case in prescribing atropine and vasoactive amines in an end-stage patient. This position highlights the argument that the effects and benefits are different facts. As such, the existence of the first, that is, the effect of the treatment, does not necessarily imply the same benefits for the patient.

According to scientific standards, for the cause-effect relationship to be reliable, it should be clearly defined and reproducible. The debate about treatment stubbornness has been mainly centered around the difficulty of determining a clear-cut statement of medical futility and who should be responsible in considering a treatment as futile. Regarding the definition, the heart of the matter resides in whether the definition should be a mathematical or a clinical definition. Mathematics is a science of certainties while medicine (clinical) is a science of probabilities. Can there be a minimum common denominator in this setting?

Regarding responsibility, there are various perspectives through which it can be analyzed:

Terminology: the word used to express the concept can itself clarify the incumbency of the decision; treatment stubbornness or clinical futility underlies a clinical point of view and, as such, in my opinion the decision should fall on the physician while the sole use of a "futile condition" can leave the decision to the patient.

Decision-making: So far as the decision is concerned, who should be responsible to consider a treatment as futile? The patient/surrogate or the physician? In other words, which ethical principle should prevail, autonomy or beneficence?

The debate about this view has also been centered on a dispute between epistemic authority (physician) and moral authority (patient/surrogate).

In the opinion of one author (Nair-Collins 2015) who wishes to excise futility from clinical lexicon, this concept is used to rationalize and defend one-sided settlements. According to him, the goals of healthcare are a socio-political question that should be addressed by consensus. In his view, the moral ascendency to lay down objectives lies with each patient or his acknowledged surrogate. However, the epistemic authority of healthcare professionals is limited and the presumption that epistemic authority, albeit limitless, can nullify moral authority is an erroneous judgement based on unbalanced assumptions. In this dispute between moral authority and epistemic authority, I subscribe the opinion of Theodore Brown, in whose conception the difference is between something that should be ideally and what it is really. In his statement:

> "Moral authority is the capacity to convince others of how the world should be. This distinguishes it from expert or epistemic authority, which could be defined as the capacity to convince others of how the world is." (Brown n.d.).

The concept of “medical futility” was debated and reached a peak in the medical community in the late eighties and mid-nineties (1987–1995), and it started to wane at the beginning of this millennium (Helft, Siegler, and Lantos 2000). The decline in the discussion of this matter in no way means that the problem has been surpassed. The number of deaths occurring after the withdrawing and withholding of life-sustaining treatments in intensive care units are a clear indication of its relevance. The problem persists and will continue to do so in the near future. The reason for a decline in the debate is the lack of new concepts, clarifications, or attempts to unfold the problem.

The Dilemma

In the late fifties and early sixties of the twentieth century, the foundations were laid down for a new medicine sub specialization—reanimation—which was quickly designated by the Anglo-Saxon expression of Intensive Care Medicine (ICM). The origin of this new field of medicine had two core principles: maintenance of vital functions, giving the body, the time required to fight off the disease, and the use of technical means to assure and maintain the function of the involved organs. It is understood that the affirmation and development of this medical expertise and its pathway are dependent on new discoveries in the fields of physiopathology, monitoring, and treatment technologies. However, this high-tech offer is not without sacrifice. It has significant financial costs, consuming a substantial amount of hospital budgets. The costs with the maintenance and investment of intensive care units should be targeted with a careful assessment, since the available resources are limited.

In this setting, in the debate regarding dysthanasia, distributive justice should not be used as an argument to restrain medical futility. The objections to this relation are correct and appropriate, since dysthanasia is a moral dilemma, while the problem with the rationing of resources is concerned with distributive justice. The proper management of ICUs is achieved by drawing up and adopting well-defined protocols regarding the admission and treatment of patients. The ultimate end is to optimize the treatment of patients and not to waste resources due to inconsequential attitudes. This is the case with treatment stubbornness, a medical attitude that deserves increasing attention, since it clearly infringes on the code of conduct of medical procedures.

In practical terms, we can say that we are facing an attitude of therapeutic obstinacy when we do not withhold or withdraw treatments that do not benefit patients. Instead, they will only prolong the process of death. In a succinct form, it can be stated that there is medical stubbornness when the treatment is out of proportion to the clinical state and the expected prognosis. The treatments that have an inherent potential to delay the death process are invasive mechanical ventilation, hemodialysis, resuscitation maneuvers, artificial nutrition, and the use of some drugs, namely vasoactive sympathomimetic amines. There is no consensus regarding artificial feeding; there is a distinction between artificial means used to feed a patient and the nutrition itself, being that only the artificial means can be considered disproportional.

So far as the prognosis is considered, it depends, among others, on the diagnosis and the severity of the situation. Diversified criteria's have been used to assess the seriousness of patients in intensive care units. In this context, the determination of the severity indices of a certain clinical setting, recorded in the first 24 hours of admission, and the evaluation of organ failure throughout the course of a procedure, rank high for the assessment of severity. Regardless of the specificity (90% prediction of survival), severity indices are liable to the influence of the diagnosis and treatment interventions and as such present a low sensibility. The difficulty in establishing an accurate prognosis underpins many attitudes of treatment stubbornness. Presumably, at the core of the question might reside the difficulty in establishing a strict prognosis.

Conclusion

Death, broadly speaking, has two components: the process and the moment death. Dysthanasia implies the unreasonable and ethically unacceptable lengthening of the process of death with the help of technology. Thus, it is presumed that end-of-life treatments should have limits in its exercise. The problem is who defines treatment limitation. What is the medical reasoning behind considering treatment limitations? Which treatments should be included in the limitation process? At the core of the difficulty in answering these questions lies the difficulty of prognostication. Medicine is a science of probabilities and there can be no certainties. Doubt, no matter how limited, is inherent to the practice of medicine.

CHAPTER THREE

HISTORICAL BACKGROUND

Since the dawn of humanity, the end-of-life has been a matter of reflection and discussion in many sectors of society. However, in the Western world, since the time of Greco-Roman antiquity, the debate was mostly centered on the philosopher's concept of life. The main reason for their leadership, in an area regarding health, was that medicine was a science with poor scientific knowledge and medical expertise was mostly based on the empirical experience of its practitioners. The physician was considered a craftsman rather than a specialized technician, whose knowledge about medicine and its practice was part of his conventional education. Additionally, life expectancy at birth has changed dramatically from ancient civilizations to the present. As such, from ancient Greece and Rome, passing through the middle ages to the modern age, the way of life itself, and particularly its end, has changed significantly.

From a philosophical conceptualization, the end-of-life gradually shifted to a religious approach in the middle ages. The pursuit of pleasure and avoidance of pain gave way to the sanctity of life, with religion and transcendence at the helm of different schools of thoughts. In the modern era, the fast evolution of knowledge and its application in technology changed the concept of the natural history of an illness, thus allowing for the prolongation of life. The ultimate end-of-life is the subjugation of death and the conquest of eternity.

According to the French sociologist Edgar Morin:

> "Any scientist serves at least two gods that along with the history of science seem to be complementary. Today, we know that they are not only complementary but also antagonists. The first is the god of ethics and knowledge that demands that everything be sacrificed for the thirst of knowledge. The second is the god of civic and human ethics" (Morin 1990, 30)

It is the clash between these two ethics that seems to underlie dysthanasia. For a clear understanding, this historical framework considers the most remarkable periods of Western civilization.

Ancient Greece

In this chapter, end-of-life ethical questions will be approached in a historic perspective through the thinking of the great masters of philosophy and medicine. Within this period of Western civilization, the emphasis on life was in its quality not quantity. Ultimately, life was worth living so long as it was not a source of pain. Thus, suicide and assisted suicide were the main themes of discussion among the various schools of Greek philosophy. Treatment limitation—dysthanasia—was also a direct or indirect cause of reflection. It is interesting to verify that for some schools of thinking, namely the Stoics and Epicureans, assisted suicide was a natural solution for those in great distress and a solution that would shorten suffering. In the genesis of assisted suicide and treatment limitations, philosophical principles of the hedonistic doctrine of living and dying well prevailed, as was the case of the Stoics and Epicureans. There was also a limited knowledge of medicine and physicians who attempted to treat patients with incurable illnesses had a bad reputation.

In classical Greece, Socrates and Plato considered that the quality of life should be a factor to be considered in terminal patients. When Socrates was sentenced to death by drinking hemlock, he refused to delay the process even though his disciple Crito suggested that he do so, claiming that:

> “I would only make myself ridiculous in my own eyes if I foolishly cling to life when it has no more to offer” (Platão 1998, 130)

Although not in the context of terminal illness, it seems clear from his words that, in certain situations, it makes no sense to prolong a life that has nothing to propose.

Plato’s opinion regarding the limitation of treatments is clear when he states in The Republic that in terminal stages:

> “Bodies diseased inwardly and throughout should not be treated with gradual evacuations and infusions, to prolong a miserable existence” (Cowley, Young, and Raffin 1992, 1473–1482).

The position of Aristotelian and Pythagorean philosophy on treatment limitations is not known but both condemned any form of suicide which they considered to be an act of cowardice (Cowley, Young, and Raffin 1992).

The fragile and unsubstantial reputation of physicians was upgraded with the pronouncement of ethical principles, most notably the oath in the Hippocratic corpus (*Hippocrates* n.d.). Regarding the end of life, the Hippocratic authors disallowed the prohibition of assisted suicide, while encouraging the refusal to treat those who were vanquished by their illness. It is curious to note the doubts that Hippocrates had in prescribing treatment in certain apparently life-threatening situations since the prescriptions are preceded by the remark:

"If the physicians choose to attempt the treatment." Why would Hippocrates emphasize this utterance? It seems clear that this prior notice could stem from the limited knowledge of physicians on the one hand, and on the prolongation of suffering on the other that could foster false hopes thereby harming the fragile prestige of these professionals (Cowley, Young, and Raffin 1992).

Ancient Rome

Greek thought and schools of philosophy, namely the Stoic ideals, influenced the Roman world as can be seen through the writings of Marcus Aurelius, a Roman emperor, and Lucius Seneca, a philosopher who had liberal attitudes towards suicide (Aurelius n.d.). The treatment limitation in terminal illness is clearly expressed by the famous Roman physician, Aulus Cornelius Celsus in his statement:

> "For it is the part of a prudent man first not to touch a killed one whose lot is but to die…" (Amundsen n.d.)

In this assertion, it is also written that in a very serious situation the physician should not raise false hopes and prevent himself from being accused of being ignorant. Currently, this endorsement suits the definition of defensive medicine. Although Stoic philosophy prevailed in ancient Rome, there are reports of those who opposed the practice of assisted suicide. Such was the case of the physician to emperor Publius Hadrianus who committed suicide in order not to administer the fatal preparation (Cowley, Young, and Raffin 1992). Such was the posture of Areteus, and in whose opinion, it was not acceptable for a responsible physician to be directly responsible for a patient's death (Cowley, Young, and Raffin 1992).

In summary, in classical Greece and Rome, the perspective on the end-of-life was greatly influenced by Platonic and Stoic philosophy, where life was to be lived with quality and suicide was the solution to any serious illness. In this period, the physician's position was one of treatment limitation, that is, the practice of defensive medicine, to avoid any damage to their fragile reputation. The Hippocrates corpus with its notorious oath introduced the codes of ethics and with it some refrain in assisted suicide while continuing to enforce treatment limitation in serious and terminal illness.

The Middle Ages

The Middle Ages comprise a long period of approximately twelve centuries from 400 to 1600 AD. In this period the Western world, or more concisely the European continent, witnessed great changes in almost every field from science to art. Behind these transformations were religious influences, the new schools of thinking, and finally the scientific spirit of inquiry and analysis. All this reshaping of thinking had its impact on medicine and the way that physicians approached the end-of-life. For clear reasoning, the period is subdivided into three periods:

Medieval Europe

The conversion of Emperor Flavius Valerius Aurelius Constantinus Augustus around the fourth century influenced the organization of the institutions taking care of ill patients. Their main features were:

- The end-of-life was to be under the surveillance of priests and not physicians.
- Christianity introduced different concepts regarding patients and illness itself.
- There was a positive appreciation of illness since it was seen as a means of sanctification.

On the other hand, there was the commandment of charity that cherished the assistance of patients and those in need. Christian communities organized themselves to take care of the sick and neglected. This gave rise to monastic medicine and to hospices (the precursors of modern hospitals) whose main aim was to provide hospitality. Monks were forbidden to treat patients and more so to perform surgical interventions as bloodshed was unacceptable (González 1998). The care for the dying was conducted under the guidelines of a treatise entitled *Ars moriendi*, the Art of Dying (Osborne n.d.). According to this treaty, it was up to clergy to treat dying patients. Physicians, with poor knowledge and scarce resources, preferred not to have any involvement with terminally ill patients. In summary, in this period the religious credo of assertiveness, in considering the sanctity of life, gave priests the authority and drive to take care of terminally ill patients, refusing assisted suicide or treatment.

The Renaissance

The Christian church was praised for setting up hospices, the forerunners of modern day hospitals, which led to a decline and regression of the scarcity of scientific knowledge due to its creed of considering life’s sanctity. However, in little more than three centuries the renewed interest in the classical world led to a reawakening of art and science. In the case of medicine, there was renewed interest in the dispute over end-of-life care. The scientific way of looking at the human body and its functions led to new horizons and the quest to prolong life became the motto of the medical community. These advances in medicine drew forth again the discussion of euthanasia. Philosophers like Francis Bacon and Thomas More proclaimed that it was possible and desirable to prolong life. They believed that the knowledge acquired should, apart from restoring health, hasten death in those cases where the illness had overcome the chances of recovery. It is curious to note that Thomas More considered that the decision to end one’s own life should result after the suggestion from a panel of experts including priests and magistrates. In contrast to most of the procedures prevailing in countries that legalized euthanasia, it was a panel of experts, excluding physicians, who would recommend euthanasia and not the patient who was supposed to request it. Despite the scientific progress, various moral theologians still considered the sanctity of life while the medical community accepted and strictly followed the Hippocratic code of ethics.

The Enlightenment

In Europe, the end of Renaissance gave way to another period that lasted about one hundred and fifty years and came to be known as the Age of Enlightenment or the Age of Reason. It was a movement that championed the use of reason in aesthetics, ethics, religion, and politics. It was during this period that the evolution and expansion of knowledge in many fields of science led society to change its perspective on the understanding of nature.

In the socio-political field, the evolution started with Francis Bacon's "Novum Organum" and ended with Immanuel Kant's "Critique of Pure Reason."

It was also in this period that the first debate about end-of-life care took place. John Locke, himself a physician and philosopher—the first of the British empiricists—defended the right to life as natural and inviolable, and as such rejected the practice of euthanasia. On the other side, empiricists like David Hume, Benjamin Franklin, and Jeremy Bentham approved the practice of assisted suicide, referencing Hedonistic ideology, and holding that only what is pleasant or has pleasant consequences is intrinsically good. By the mid-nineteenth century a new current of philosophical thinking emerged in Europe—Positivism—with the French philosopher Auguste Comte as the main ideologue. According to this ideology, superstitions, religions, and other theological teachings should be ignored because they do not contribute to the evolution of humanity.

At this time, the medical community had acquired progressive scientific knowledge and replaced the priests at the deathbed. Physicians generally refused any assistance in death. New knowledge about anesthesia meant that treatments were focused on pain relief and the relief of suffering. This was the beginning of palliative medicine. It can be epitomized by a statement by William Osler, the famous North American physician:

> "If a life is worth living at all, it is certainly worth living to the very end, a position from which the conscientious physician has no possible escape in the care of the cases which he is called upon to treat." (Cowley, Young, and Raffin 1992).

The Modern Era

By the end of the nineteenth century, assisted suicide, although maintaining a reflexive debate, was not considered as the only alternative to the suffering of terminally ill patients. Other options emerged on the horizon for the critically ill. In this context, writings about the "science of euthanasia" (Cowley, Young, and Raffin 1992) by a German physician, Karl Friedrich Heinrich Marx, not related to Karl Marx, the politician, are