ETHICS OF ARTIFICIAL NUTRITION

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Abstract
Artificial nutrition represents the whole set of medical therapies which totally or partially replace oral feeding when this is no longer possible. Artificial nutrition needs to be initiated and withdrawn depending on the balance between the advantages and disadvantages induced to the patient. The medical world frequently encounters dilemmas about initiating and withdrawing this treatment. Numerous controversies still exist regarding the appropriate use of enteral or parenteral nutrition in certain categories of patients, such as those with strokes, with persistent vegetative states, with dementia, with neoplasms or other terminal illnesses. The decision to initiate, withhold or withdraw this medical procedure needs to be based on the patient’s autonomy. If the patient is no longer capable of making decisions and has not left previous clear directives, it is the responsibility of the patient’s legal representative, of the family or of the Court to decide according to the medical data on the respective case and the legal provisions in force in each country. Other ethical issues are generated by the obligation to rationalize health care resources.

Keywords: artificial nutrition, ethics, autonomy, initiate, withdraw, resource rationalization.

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Introduction

The progress of medicine has always been accompanied by new ethical dilemmas. The field of nutrition does not make an exception to this rule and one of its most controversial subjects refers to the ethical issues raised by therapies used in artificial nutrition. Man, like all superior animals, physiologically lives his life based on oral feeding. When, from certain reasons, some patients cannot eat or drink enough to keep themselves alive, modern medicine may resort to artificial nutrition. Artificial nutrition represents the total set of medical therapies which supplement or replace oral feeding. A person may receive food and fluids when they cannot be taken orally with the support of artificial nutrition techniques (1). Most authors agree currently that the maximum period of time feeding can be limited in hospitalized patients should not exceed 7 days. A 10-15% weight loss is also an indication to initiate nutritional support (2).

Artificial nutrition does not represent a curative treatment; nutritional support by itself is not enough to cure a disease. Artificial nutrition needs to be regarded as adjuvant therapy which supplies the patient with the necessary nutriments during the curative or palliative treatment. Supplying nutrients through a gastric or jejunal feeding tube or through an intravenous catheter keeps alive the patient who cannot be fed orally (3).

This paper addresses the main ethical issues in the field of artificial nutrition, such as respect for patient’s autonomy, dilemmas caused by initiating and withdrawing the treatment, as well as aspects concerning artificial nutrition in the context of rationalizing health care resources.

The history of artificial nutrition and its relation to ethics

Ever since the appearance of the first medical therapies which are part of artificial nutrition, they were based on the Hippocratic tradition of respecting the principles of beneficence (“to do good”) and non-maleficence (“to do no harm”). As already known, Hippocrates was also talking about confidentiality, but denied the patient’s right to autonomy in order to preserve the physician’s reputation (4).

Religious beliefs also contributed to the foundations of artificial nutrition. It is known that major religions of Europe, both Christianity and Judaism, are based on the idea of ensuring water and food by any means (4).

Artificial nutrition has a 500 years history in Europe. The first principles of enteral nutrition were defined by John Hunter in 1793, when he considered necessary to feed a patient with paralysis of the swallowing muscles by delivering food directly into the stomach. The concept of “starve a fever and feed a cold”, common since Galen in the 4th century, was abandoned in the 19th century, when several authors emphasized the necessity and importance of feeding in medical care (4). The introduction of the flexible endoscope in 1980 made possible the percutaneous endoscopic gastrostomy, allowing the development of long-term enteral nutrition during the next decade (5).

Religion represented one of the
main determinants of the ethical concerns in the field. The Christian Church, for example, markedly influenced the decision algorithms of withdrawing or continuing artificial nutrition (6). In 1957 Pope Pius XII stated that the spirit is above the body and, consequently, artificial nutrition and hydration become an option, not a moral sine qua non obligation if patients can no longer interact with the surrounding world. Other Catholic spiritual leaders have also agreed to the possibility of withdrawing artificial nutrition from patients in a persistent vegetative state (7). Nevertheless, in an allocution in 2004 Pope John Paul II stated that physicians must ensure nutrition and hydration to most patients in a persistent vegetative state, as considering that the use of intravenous catheter and artificial feeding tubes does not represent a medical act. The Pope’s arguments referred to the lack of an absolute certainty concerning the prognosis of the persistent vegetative states and to the pain the lack of artificial nutrition caused to the patient (5). The modern medical world does not agree to this idea, arguing that nowadays there are diagnostic methods which can clearly establish when a persistent vegetative state has no hope for recovery (5).

Methods of artificial nutrition
Artificial nutrition includes several procedures (1):
- Intravenous fluid administration provides the daily necessary liquids for the patient’s proper hydration, but usually it does not deliver an adequate supply of nutrients;
- Nasogastric tubes inserted through the patient’s nasal passages and upper digestive tract into the stomach provide a proper supply of liquids and nutrients. They are mostly used in patients with acute illnesses, since their placement cannot be permanent;
- Hypodermoclysis represents the subcutaneous infusion of less than a liter of fluid per day;
- Percutaneous endoscopic gastrostomy is the procedure of inserting a tube into the patient’s stomach through the abdominal wall; this technique is used when it is anticipated that the patient will not be able to feed orally for several weeks. Rarely, the tube may be passed through the abdominal wall and placed directly into the jejunum (jejunostomy). Both techniques are capable to ensure a proper supply of nutrients and liquids.

The choice of one specific procedure of artificial nutrition needs to take into account, medically and ethically speaking, the numerous side effects they can induce. Enteral nutrition may cause diarrhea, nausea, vomiting, esophageal perforations or pulmonary aspiration of feeding material. Parenteral nutrition is associated with the risk of catheter-related infections, phlebitis, dyselectrolytemia or even – in case of renal dysfunction – peripheral edema or acute pulmonary edema (7). Both types of artificial nutrition are associated with the risk of bleeding, as well as the whole set of consequences (including ethical ones) following the restraint of a non-compliant patient in order to prevent him from removing the tubes and catheters of artificial
Ethical issues in artificial nutrition

For a long time controversies emerged whether artificial nutrition is part of the basic medical care or a medical treatment. The cultural and religious concepts left their marks upon the perspectives from which nutrition is regarded in the daily life and as a part of the medical care (8). The Catholic Church – for instance – sees life as a benefit, no matter how severe a person’s disabilities may be. Therefore, feeding the patient is considered to be basic care under any circumstances (9). Pediatricians claim that in newborns enteral nutrition is part of the basic care (4). However, in adults, modern ethics sees artificial nutrition as a medical procedure (4, 9), so the decision to initiate or withdraw needs to comply with the same ethical rules like transfusion or dialysis (10). Unlike artificial nutrition, the medical legislation in some countries considers the oral supply of liquids and nutriments a basic care procedure (4). In Romania there are no legal directives concerning artificial nutrition; any decision in this regard could only be made through extrapolating of the existing general provisions of Law no. 46 of 2003.

Since artificial nutrition is considered a medical treatment, competent adults may accept or not this procedure, like any other medical treatment. The patients’ consent is crucial to initiate or continue artificial nutrition, even if refusing the respective techniques may cause their death. In some controversial cases the final decision was made by the Court (11). The issue of initiating or withdrawing artificial nutrition becomes even more delicate with incompetent patients.

If the patient is not able to understand or express his wish, the physician may have several options. Obviously, if the patient has previously mentioned his wish in writing regarding the therapy he would accept under these circumstances, these wishes need to be obeyed. In some countries, family has legal rights to make decisions or – if the patient orally stated his wish in front of family members, friends or even the physician – these forms of orally expressing his decision may be taken into consideration when making a decision. Some countries consider that the patient may be legally represented by a person (a family member, a friend or a lawyer) previously appointed to represent his interests when he becomes unable to decide. Under certain circumstances the Court may be appealed in order to appoint a person who may represent the patient’s interests (especially in children) or authorize the physician to make a decision to the patient’s best interest (2, 4). In Romania there are no clear legal provisions concerning either the advance directive or the other persons who might decide on behalf of a patient who became incompetent to make decisions on the possibility of artificial nutrition. Of course, the existing general provisions of Law no. 46 of 2003 could be extrapolated. However, considering that initiating or withholding artificial nutrition could sometimes be a life and death issue, we cannot but wonder about the danger to entrust the decision to the family or even to the physician, given the absence of well-defined legislation, as well as the lack of clear medical
protocols. Therefore legal norms and medical practice guidelines in this field are strongly required in our country.

Beyond complying with the patient’s option, artificial nutrition triggers even more delicate issues when considering arguments referring to the costs and benefits of these medical procedures, as well as the moment of possible withdrawals from this therapy. We will continue with some examples of ethical dilemmas for which the medical world is far from having yet provided a definitive answer (10).

The patient who cannot eat orally requires expensive enteral and parenteral nutrition therapy in order to maintain his caloric intake. Is this expense justified? Especially in the developing countries, where the costs of medical care are a delicate problem, isn’t there a risk that the healthcare system resources may be disproportionally consumed to the detriment of other patients?

Meaningful prolongation of life is unlikely to occur with enteral or parenteral nutrition in patients with advanced cancer. If this is the case, is it morally acceptable to maintain these therapies?

Perhaps the prolongation of life achieved by enteral or parenteral nutrition is insignificant, but will the patient not die if we removed these therapies? What is the difference between such an act and active euthanasia?

We will address next the main points of view, as well as pro and con arguments, which might answer to the above questions.

The ethical principles that guide decision-making in artificial nutrition are the same principles used in many clinical ethic decisions: autonomy, beneficence, non-maleficence and justice. Autonomy refers to the patient’s or authorized person’s right to decision and self-determination (12), including the right to make decisions on the initiation, continuance or withdrawal of artificial nutrition. Beneficence implies that a clinician’s actions must offer a benefit to the patient, indicating that it is appropriate to provide artificial nutrition only if helping the patient to meet clinical and quality of life goals. Non-maleficence is translated as the use of artificial nutrition limited by avoidance of anymore harm and aiming to the alleviation of pain and sufferance; if its adverse effects outweigh the potential benefits, then artificial nutrition should not be initiated or continued. Justice requires that healthcare providers should make nondiscriminatory decisions, which should not be dependent upon factors such as chronological age or economic status (1, 13).

In many cases, these ethical principles may be incompatible with one another, generating ethical issues, sometimes hard to resolve. On a larger scale, even though the ethical issues primarily involve the patient, it often becomes difficult to communicate with his family, given the subjectivity of close relatives. Therefore, the physician’s role and responsibility extend and enlarge the medical care to a humanitarian perspective (4, 9). However, the physician’s opinion is often different from the family’s opinion on the patient and this may raise ethical disputes which can be solved only through legal interventions.

The agreement between the physician and the patient needs to find its written expression in the informed
consent. Signing such a document comes after a process of informing the patients about a certain medical therapy or procedure – such as percutaneous endoscopic gastrostomy, for example – and their decision to agree to it or not (11). The law defends both autonomous patients’ rights and the rights of non-autonomous patients, when they left in advance indications concerning the initiation or withholding of a therapy (15). In some countries legal measures may be taken against the physician who treated a patient whose written dispositions mentioned his wish of withholding the treatment (2). Children under 18 are considered minor without the legal right to withhold treatment; in their case, parents’ consent is valid. Parents may withhold treatment if this is to their child’s interest. If the child accepts a treatment which is withheld by his parents, the decision on therapy will be made by the physician based on the child’s best interest, even if justice needs to be involved. (5).

The patient’s expressed wish is essential for establishing the total time for which artificial nutrition is to be provided (16). Still, many times the patient’s wishes are not known. It might be advisable that such discussions with the patients would be carried out during the early stages of the disease and their wishes on the measures to be taken in the final stages of their life would be documented. Nonetheless, only 20-30% of the patients leave such directives (17).

There are no legal differences between withholding and withdrawing artificial nutrition. If the burden of artificial nutrition is greater than its benefit or if it no longer meets its intended goals, then this treatment can be withdrawn with consent of the patient or – in some countries – of the legal representative. If the patient or his legal representative withdraws the initial his consent, artificial nutrition can be interrupted (1). Withdrawing support therapy will be made in the following order: dialysis, vasopressors, blood tests and afterwards the nutritional support and mechanical ventilation (18).

Although ethically or legally speaking this difference is not mentioned, many clinicians “feel” that withholding or withdrawing artificial nutrition would be different things: not to initiate artificial nutrition would be as if you let the disease follow its own inexorable course to death, while withdrawal of artificial nutrition would be as if you killed the patient. In some cases, this ethical dilemma paradoxically has negative consequences on the patient: although the initiation of artificial nutrition might have beneficial effects on the patient, clinicians avoid using it, in order not to encounter later the difficult moment of its withdrawal (11).

Although, medically speaking, artificial nutrition which has proved its inefficiency needs to be discontinued, an “emotional” interpretation of this action would be to leave the patient “starve to death”. On the other side, enteral nutrition could be regarded as an adjustment to disability; consequently, its withdrawal could be interpreted as breaking the civil rights. Culture and religion also play an important role in appreciating the importance of nutrition in the daily life and in medical care (9). Some religions (Christianity, Islam and Judaism) do not agree to withdrawing artificial nutrition. One must take into account though that no group is entirely
homogenous, therefore individual beliefs may vary inside the same religion (19). From all these reasons, even among the European countries there are huge differences about the decisions to withdraw artificial nutrition and the way to die (8).

If a patient’s diagnosis or prognosis is uncertain, a test period for that nutritional intervention could be useful: a set of therapeutic goals and a period of time in which they should be reached are to be established and the treatment may start. At the end of the initially established time, the efficiency of the artificial nutrition is assessed; if it has not proved to be beneficial, it will be discontinued (19).

In ethical terms, withdrawing artificial nutrition is distinct from physician-assisted suicide or active euthanasia; some authors consider the withdrawal of life support and of artificial nutrition as passive euthanasia. In physician-assisted suicide, a physician enables the patient to take his own life (e.g. by writing a prescription for a big quantity of barbiturates). In active euthanasia, a physician intentionally and directly induces the patient’s death (e.g. by injecting a bolus of potassium chloride) (7, 20).

Ethical issues related to artificial nutrition in particular clinical situations

The efficiency of artificial nutrition depends on the patient’s overall condition and the reason it is recommended. Artificial nutrition has good results in patients with temporary swallowing or superior gastrointestinal tract diseases and in those with certain time-limited disabling conditions (1). We can mention here patients with non-neoplastic upper gastrointestinal tract obstructions, patients who receive treatment which prevents them from eating for more than two weeks, patients with persistent or recurrent intestinal obstructions, patients with post-medication disorders or intestinal resections (3, 4, 21). Artificial nutrition might even prolong life, therefore allowing time for a more precise assessment of a patient’s recovery chances, if his initial prognosis is uncertain. Therefore, ethically speaking, artificial nutrition is highly recommended in these cases. If a patient is dependent on artificial nutrition for an adequate nutriment supply and enjoys his life, artificial nutrition is clearly useful, not only physiologically, but also in terms of quality of life (1).

In elderly persons with acute diseases, artificial nutrition can reduce complications and mortality. In persons receiving home care assistance, artificial nutrition determines only a minor weight improvement, without any change in mortality. On the other side, as we will see in the following cases, artificial nutrition is not recommended in terminal patients (death expected within the next six months) or in patients with irreversible diseases (permanent vegetative state or advanced dementia) (9, 22).

Shortly, starting from the premises that basic care such as oral nutrition must never be withdrawn, the clinical judgment needs to decide later whether the patient’s incapacity to eat is irreversible or it is induced by intercurrent, reversible, conditions. In the latter case the patient could be provided artificial nutrition for a period of time (2).
**Patients with strokes**

Around 40% of the patients having suffered a stroke have swallowing disorders and cannot eat. In these situations the nutritional status progressively fails and leads to an unfavorable prognosis. This is the reason why some authors support the early provision of artificial nutrition (insertion of a nasogastric tube or percutaneous endoscopic gastrostomy), although there are no studies to prove the benefits of this therapy. However, even if dysphagia is present in more than a third of the patients when being hospitalized, this percentage decreases in a week to 16%; therefore, enteral nutrition is generally recommended to be postponed for a week. This period of time allows a more accurate assessment of the patients, as well as their recovery from aphasia or dysarthria, so that they can express their own options. It is usually preferred to initially use a nasogastric tube, since it involves low mortality and can be easily removed if deglutition recovers. If the patient does not recover from deglutition disorders and needs long-term enteral nutrition, resorting to percutaneous endoscopic gastrostomy may be necessary. Most authors recommend the invasive methods of enteral nutrition only two to four weeks after the stroke (2).

**Patients in a persistent vegetative state**

The persistent vegetative state is a form of permanent alteration of consciousness where patients are in a state of partial wakefulness and have physiological sleep-wake cycles, but are completely unconscious about themselves or the surrounding world. It is induced by any pathological situation in which the functioning of the cerebral cortex is totally damaged, but the nervous activity of the brainstem is preserved (23). Positron emission tomography scans have demonstrated that when a patient is in a persistent vegetative state, the brain areas responsible for pain perception do not function. Therefore, providing nutrition support to these patients to provide comfort and reduce suffering has not a scientific basis (3). However, artificial nutrition can definitely prolong life for some patients under a persistent vegetative state, so it might be prudent to provide artificial nutrition when the diagnosis is uncertain. Such situations have frequently generated during the last decades ethical dilemmas extensively propagated through the media. Terri Schiavo case is well-known, when different Courts consecutively gave contradictory sentences on the continuation or withdrawing of artificial nutrition; the ethical controversies continued even after the definitive withdrawal of artificial nutrition and the patient’s death (1).

**Patients with dementia**

Population ageing results, among other consequences, in the dramatic increase of Alzheimer’s disease and cerebrovascular disease with cognitive impairment incidences. In mild or moderate forms of dementia patients do not remember having eaten or not. It is then necessary to monitor their meals and even place some snacks within the patients’ reach, in order to help themselves and properly maintain their nutritional status (4). Eating disorders usually appear in advanced forms of dementia; patients may present deglutition alterations, pulmonary aspiration of feeding material, inability to self-feed, loss of interest in food or even resistance to feeding (1, 2). All this frequently leads
to malnutrition and food supplements may be useful (1, 4). Some physicians appeal to enteral nutrition (usually through percutaneous endoscopic gastrostomy), aiming to improve the patient’s nutritional status, prevent or heal pressure sores and prevent aspiration through the trachea and secondary pneumonia. Sometimes, healthcare staff may use enteral nutrition simply due to the fact that it meets their needs (even if not those of the patient), since feeding a dementia patient by mouth takes more skills and time than tube feeding. In some countries, nurses receive higher reimbursement for tube-fed patients than for orally-fed patients (1). However, studies have shown that, in patients with dementia, enteral nutrition does not reduce the risk of pressure sores or pneumonia, does not induce an improvement of the cognitive abilities or daily performances and does not increase the patients’ comfort, weight or functional status or their survival (1, 2, 3, 9, 24). Overall, enteral nutrition in patients with dementia has not proved any real long-term benefit. Moreover, the immediate risk of death resulting from the insertion of a feeding tube can be quite high, varying between 4 and 54% (3, 13). The use of a nasogastric tube may induce diarrhea, aspiration syndrome, tube obstruction or its removal by the patient. Percutaneous endoscopic gastrostomy may be associated with discomfort, aspiration syndrome, infections, oral hypersecretion, feeding tube dysfunctions (2, 9). There are cases when patients with dementia are physically restrained to prevent them from removing the feeding tubes (1).

In order to increase the quality of life, it is recommended that patients with advanced dementia be provided oral feeding. In their case effort should be made to remove dietary restrictions. If intercurrent diseases occur, these patients will be fed just like those without dementia. However, if artificial nutrition is required, specific goals will be set, which should be met in a certain period of time. If these goals are not met, enteral nutrition is to be withdrawn (1, 4). In the latest studies on dementia, artificial nutrition is considered to have more risks than benefits and not to be initiated; providing comfort and dignity to the patient is more important than the nutritional treatment (2, 4, 25). Exception should be made for the patients with vascular dementia, who may improve their cognitive functions. This emphasizes the importance of accurate neurological assessment to confirm the diagnosis.

Patients with neoplasms

In some forms of cancer, patients actually “starve to death” and in these cases artificial nutrition is beneficial. We mention here cancers localized in the cephalic and cervical regions, esophageal neoplasm with secondary local obstruction and ovarian cancer with intermittent small-bowel obstruction. Weight loss is often an inevitable result of antineoplastic therapy, so in such cases nutritional interventions may prevent nutritional and physical impairment (3, 10). If there are doubts about the patient’s prognosis, artificial nutrition may be provided for a limited period of time and the decision to continue or withdraw will be made depending on the clinical results. In this situation as well there is no difference between withholding and withdrawing artificial nutrition in case it proves its inefficiency (10).
In patients with terminal cancer, malnutrition is responsible for 25% of deaths. Weight loss and metabolic disturbances in these patients are induced by a series of cytokines and tumor products. Even though artificial nutrition may result in a temporary decrease of the weight loss, it does not significantly alter the evolution of the disease. Furthermore, as in other cases, it is expensive and burdened with the risks of side effects. On the other hand, the physician’s opinions are often distinct from the family’s wishes; family members do not understand the physiopathology of the weight loss and may draw the conclusion that their loved one is starved to death if not provided or withdrawn artificial nutrition (10). Nonetheless, patients with terminal cancer are rarely hungry and, if hunger occurs, it is tempered by small amounts of food. It is recommended to provide appetizing meals, according to the patient’s preferences, at an adequate temperature, in a quiet environment, accompanied by comforting music. Patients must not be forced to eat against their will (10).

Providing comfort and improving symptoms are, on the other hand, more important than an aggressive nutritional support. The physician’s competence and experience will decide when the curative treatment or aggressive therapies need to be withdrawn in favor of meeting these requirements and keeping the patient’s dignity (4).

Patients with terminal illnesses

Patients with terminal illnesses, nearing death, lose their appetite and become incapable to self-feed. Until recently, death from malnutrition and/or dehydration was thought to induce supplementary pain to the patient, so that artificial nutrition was recommended by routine. Nowadays it is known that the decrease of liquid and nutrients intake determines an improvement of the symptoms. Most terminal patients often do not feel hungry or thirsty. The starvation ketosis leads to the body’s release of endogenous opioids, which are thought to block pain and discomfort (7). The role of hydration in terminal patients is controversial. More studies have shown that liquids play just a small role in these patients’ comfort as long as they are provided rigorous oral hygiene. The sensation of dry mouth may be treated with pieces of ice chips, moistened swabs or lip balms (3, 22).

There is no evidence that medically assisted hydration at the end of life prolongs survival. Water deprivation increases the internal production of endogenous opiates that lead to a euphoric state and seem to be associated with pain reduction, inducing the patient a state of somnolence before death (1, 26, 27). Moreover, intravenous hydration can exert a negative impact upon the quality of life because of risks of patient’s physical restrain, increasing pulmonary secretions and urinary output, bleeding, nausea, vomiting, fecal incontinence and edema (3, 21, 28). Since in terminal patients the goal is to keep their dignity and not to prolong their sufferance, there are voices who claim that – ethically speaking – it is human to let such patients die after withdrawing artificial nutrition (5, 13).
Conclusions

Artificial nutritional support is a therapy raising numerous ethical issues and which needs to be implemented according to the patient’s wishes, diagnosis, prognosis and therapeutic goals. The communication between the patient, his family and the healthcare team is crucial. If the discussion is open and sincere, it will help making decisions to the best interest of the patient. Patient’s autonomy always needs to lie at the foundation of these decisions. Moreover, once artificial nutrition has been initiated, it is necessary to periodically monitor its efficiency and possible side effects, so that the initial decisions may be adjusted consistent with the upcoming reality. In Romania adequate legislation and specific protocols need to be set in order to facilitate the progress of making decisions related to artificial nutrition from the perspective of the risk/benefit balance.

References