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Triage during the COVID-19 pandemic

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Abstract

The coronavirus disease (COVID-19) was previously unknown, and we are learning about it day by day, but pandemic-associated ethical dilemmas have been studied and discussed for years. Triage means not only ranking in terms of importance (prioritisation) but also allocation of limited medical resources. Survival, post epidemic-quality of life, and consumption of medical resources required to achieve the set goal are crucial for making triage decisions. The pandemic triage decisions should be based on a protocol, considering the need for medical measures and therapy benefits. The first step is to consider the exclusion criteria and the risk of death. The next step is sequential clinical assessment, repeatable at defined intervals. It seems that the preferable solution is to triage all the patients and give priority to those who would benefit more. A prerequisite for allocating insufficient medical resources is public trust in the criteria for allocation.

Key words: pandemic, COVID-19, triage.

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The pandemic seems unreal. Historically, it should not. Looking back, the pandemics of influenza in 1918, 1950, 1960, and 2009, of HIV/AIDS (Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome) in the 1980s, of SARS (Severe Acute Respiratory Syndrome) in 2002, and of MERS (Middle East Respiratory Syndrome) in 2015 should be recalled. The coronavirus (COVID-19) was previously unknown, and we are learning about it day by day, yet pandemic-associated ethical dilemmas have been studied and discussed for years. The basic ethical principles, which also apply to pandemics, are justice, equality, respect for autonomy, and obligatory provision of care to all patients, irrespective of age, race, disability, gender, sexual orientation, social status, or other personal characteristics. It is worth emphasising that setting priorities has nothing to do with discrimination. Impartiality is not tantamount to equal attitudes to all individuals [1].

For several weeks now, the pandemic has become part of our daily life, affecting medical professionals, societies, countries, continents, and the entire world. We function while facing medical resource scarcities. According to the simulations based on the 1918 influenza, 400% of existing intensive care stations and 200% of ventilators will be required in the United States during the current crisis [2]. In this respect, we are frightened by the concept of triage. The word triage comes from French and means to classify, to sort. Originally, it was used for grouping goods by quality and price during fairs. Triage also means to grant priority. This meaning is commonly used in hospital emergency departments (EDs) [3].

During disasters, cataclysms, or catastrophes, triage means not only ranking in terms of importance (prioritisation) but also allocation of limited, insufficient medical resources. An easy-to-neglect consequence is associated with focusing on the level of society rather than that of an individual patient. Health policy focused on the population health subordinates the individual's interests and rights to the collective welfare. It follows the principle of providing the greatest possible welfare to as many citizens as possible. Eventually, it is not only survival to discharge that matters. The quality of life of survivors is equally important. Survival, post epidemic-quality of life, and consumption of medical resources required to achieve the set goal are crucial for making triage decisions [3]. In the era of lack of effective treatment of COVID-19 infection, the doctor is not always able to decide which supportive therapies are the treatment of choice at a given stage of infection. Theoretically, it can be assumed that less invasive treatment may be comparable or even more effective in a specific clinical situation.

The most dramatic example of a shortage of medical resources is the need to allocate ventilators. In patients with increasing shortness of breath and deteriorating respiration efficiency, the time frame

optimal for initiating mechanical ventilation and saving lives is short. Likewise, ventilator weaning in a patient completely dependent on ventilation will cause death within minutes. Decisions on initiation or withdrawal of mechanical ventilation are life-or-death choices [4]. In many countries, ventilator weaning in intensive care units is legalised and ethically justified in two cases, i.e. when informed consent was given by the patient or his/her family and when futile therapy is restricted. The ventilator is a meaningful example of shortages of medical equipment resources; similar problems concern intensive care and renal replacement therapy stations as well as extracorporeal membrane oxygenation (ECMO) [2]. The deficiencies also involve tests to detect the virus in biological materials, medicines, and personal protective equipment. Restricted rationing and allocation of medical resources at the lowest level (bedside settings) have a huge ethical load. It is not only saving lives but also respecting human rights and following the principles of social justice [5].

In daily clinical practice under normal conditions, a patient requiring life support simply receives it. The pandemic creates completely new conditions for the allocation of medical resources, which results in incapacitating stress for intensivists who have to make such decisions at the patient's bedside. The attending physician and the attending nurse are guided by the patient's individual good, so they should not make triage decisions. These decisions can be entrusted to a hospital committee consisting of experienced, respectful physicians, ethicists, social workers, and others. Attending physicians should be allowed to appeal specific committee decisions, appreciating the importance of clinical assessment [4]. An additional responsibility of the committee is to inform the patient's family of collective decisions, which makes the verdict accurate, obvious, and emotionless. The ideal consequence of the decision not to apply life support or about ventilator weaning is to entrust the patient to palliative care physicians [4]. Some authors consider it ethically unacceptable to discontinue mechanical ventilation in one patient, predicting its future use in another patient [6]. During the pandemic, the availability of medical supplies varies from hour to hour or day by day. One day there might be a lack of ventilators, while another day there might be a surplus .

Triage during the pandemic is drastically different from the generally known and accepted activities used in the EDs, carried out by paramedics, who do not analyse the response to treatment or distant prognosis. The introduction to the decision about the method of treatment is the knowledge of the patient's health condition before the infection, at the time of hospital admission, and prognosis of treatment result in the event of starting intensive therapy or not undertaking it.

Pandemic triage decisions should be based on a protocol, considering the need for medical measures and therapy benefits. The first step is to consider the exclusion criteria (e.g. irreversible shock) and the risk of death, e.g. using the sequential organ failure assessment (SOFA) score to determine the mechanical ventilation priorities. The next step is sequential clinical assessment, repeatable at defined intervals. In cases when the patient's condition deteriorates despite the use of ventilation therapy, ventilator weaning and the use of the device in another infected patient can be considered. There is no evidence that one scale of death risk assessment is superior to other scales, but the SOFA score is easy to use and requires only a few laboratory tests. Initiating mechanical ventilation, the patient/family should be informed about monitoring the patient's responses to the therapeutic measures taken. In cases of ventilator scarcity, the time for mechanical ventilation should be optimised (time limited trial). The time of observing the patient's response to intensive treatment should not be too short, to prevent situations in which a longer ventilation time would result in survival [7]. No post-treatment improvement or deterioration of the clinical condition may indicate that triage is needed.

Other rules for allocating medical measures based on a first come, first served basis or prioritising the most severe conditions. Public health policies, which focus primarily on population-level health outcomes, may subordinate the interests and rights of individuals to the common good. Moreover, this principle involves the maximisation of the years of life. The same principle applies to lung allocation for transplantations. It is suitable for patients as a group and discriminatory for those whose life span is extremely limited. The moral argument for favouring patients at earlier stages of life is based on the motto: death is always a misfortune; premature death is a misfortune and a tragedy [2]. A system of organ allocation based on the cumulative use of many principles has proved to be feasible and fair. In a pandemic, the conduct of elective operations should be limited if it is organisationally and medically justified. In cases of organ transplantation, it may mean a loss of the patient's only option for effective treatment, but there may be a need to postpone even these procedures.

Unfortunately, during the pandemic, there is no time for complex algorithms. White and colleagues proposed a simple algorithm in which each patient is evaluated using short-term survival (SOFA score), prognosed survival after discharge (concomitant diseases), and the likelihood of surviving subse-

quent life cycles (age in years). All three elements of the algorithm are assessed on a four-step scale (1–4 score). Patients with the lowest score should be given priority in accessing limited medical measures [2]. The University of Pittsburgh has eliminated the age criterion. Age is decisive when two patients have equal scores [8]. It should be considered whether adding the criterion of fragility to the algorithms would be justifiable. The Canadian Clinical Frailty Scale, the advantage of which is simplicity, would be an ideal solution. The authors have suggested such a modification of the algorithm due to the lack of objectivity of the register age. This especially applies to situations in which it is not possible to know the will of the patient when establishing the treatment plan. In such cases, there is consent to arbitrary decisions based on a frailty scale.

However, discrimination on grounds of disability is strongly opposed and considered socially unfair. Absolute exclusions regarding certain diseases, e.g. cardiac diseases in NYHA class III or IV or end-stage renal disease, give the impression that some lives are not worth saving. It seems that the preferable solution is to triage all the patients and give priority to those who would benefit most [7]. The same triage rules are used in patients affected in another mechanism, unrelated to the aetiological factor of the pandemic (e.g. car accident) [6]. According to six recommendations for fair allocation of means under pandemic shortages proposed by Emanuel and colleagues, priority should be given to a physician in anaphylactic shock requiring intubation and ventilation and not to patients infected with COVID-19 who are not first-line medical professionals [9]. The examples presented above show that the triage logistics is not explicit. It confirms the often-repeated maxim that no solution is universal [10].

A survey of triage policy during the current pandemic was conducted in the United States and Canada between March 19 and March 30, 2020. A questionnaire was sent to 73 hospitals, the response rate was 91.8%. The triage procedure in 50% of the institutions surveyed did not exist or was being developed; 9.7% of hospital directors did not choose to make its contents public. Other hospitals (with academic affiliation) used triage. The most frequently mentioned values in the description of the procedure were fairness, transparency, management, obligatory provision of care, and prevention of unnecessary loss of life. Among the triage criteria, the most repeated terms were benefit, need, age, resource protection. The SOFA was used in the majority of centres (80.8%). Only 38.5% of the institutions surveyed considered that there was a need to authorise the government's triage policy. The composition of the triage committee has also been specified; 26.7% of survey institutions have standardised the DNR (do-not-resuscitate) order once discontinuation or absence of mechanical ventilation was decided. One hospital suspended the use of ECMO during the pandemic [11]. During a pandemic, the use of the most advanced techniques, involving enormous resources, is not always justified. Decisions on their implementation must be made on a case-by-case basis.

The decision not to resuscitate all patients infected with COVID-19 raises some doubts. The physicians are obliged not to harm, to act in the best interests of the patient, and to consider individually the benefit/loss balance resulting from the medical interventions undertaken. In patients whose physician does not anticipate the benefits of resuscitation, there are no indications for carrying out it. There is no justification for disseminating the DNR procedure in the pandemic [1].

A separate issue is that medical professionals are favoured in accessing limited resources. The authors who support this approach base on the principle of reciprocity. However, it seems highly unlikely that any medical professional who has been infected and required mechanical ventilation would return to active practice during the current pandemic. The priority in accessing measures can be justified considering an infection risk associated with the work performed. Fulfilling many medical responsibilities involves the risk of infection. Can the degree of risk be determined and priority allocated? Moreover, where should employees producing personal protective equipment, government workers, police, those who supply food and energy, and others be placed in this hierarchy? [7, 10]. The answers to these questions remain inexplicit, and the discussion is ongoing. According to the recommendations of impartial allocation of measures published in the NEJM, prioritising first-line medical workers, other professionals providing care to infected patients, and those responsible for proper functioning of state infrastructure and institutions difficult to be replaced is acceptable [9]. The authors conclude that even well-designed recommendations can be challenging for clinicians making decisions and implementing them. There are voices strongly opposing any social privileges and disagreeing with the treatment of some categories of individuals as less worthy [1].

A prerequisite for allocating insufficient medical resources is public trust in the criteria for allocation. The authors of the survey on triage procedures in the United States and Canada state that there is no key information regarding the implementation of such procedures. It should be specified who should legitimise such a procedure; moreover, the

mechanisms for minimising possible bias should be determined. Ventilation cannot be abandoned due to lack of equipment if a nearby hospital has ventilators. Due to different triage criteria, a patient who is unaware of this fact may choose a hospital whose policy is not beneficial to him/her. Making the triage policy public would allow the patient to select such a hospital that offers the most favourable treatment option for him/her [11].

Finally, the question is whether allocation of medical resources is necessary. It is likely that redistribution is the management of choice. Moving resources from places less affected by the pandemic to those where the peak of infections is observed can prevent patients from being deprived of medical resources and medics of final decisions [1].

What is the issue of triage in Polish hospitals? Are we prepared to make such extremely difficult decisions. Lawyers specialising in medical law and bioethics can help to prepare the triage policy. This group of professionals is fully willing to cooperate and be of assistance. The Department of Criminal Law and the Department of Bioethics and Medical Law of the Jagiellonian University organised a series of meetings under the common title "Law during the epidemic"; the participants (including physicians) attempted to solve the legal and ethical dilemmas currently faced by medics. The triage policy can be formulated by the Ethics Committee, appointed in each accredited hospital. Now that we know that the pandemic is a real threat to our country, hospital, unit, or department, the organisation of appropriate and comprehensive treatment is worth considering.

According to the authors, each hospital should have a triage procedure to use in times of a pandemic. When developing it, special emphasis should be placed on several fundamental issues:

1. Knowledge of the patient's health condition prior to infection and knowledge of the patient's/family's informed will about the considered COVID-19 treatment methods (including intensive therapy) and the expected treatment effects, which is the basis for making the final decision.

2. Selecting hospital risk assessment scales of an adverse treatment outcome in order to objectify the considered clinical data.

3. Establishing a hospital advisory committee of experienced staff, available 24/7, whose task is to resolve difficult moral dilemmas, often resulting from limited, insufficient medical resources or a lack of qualified personnel.

4. Organisation of a ward dedicated to infected patients disqualified from intensive treatment, in which the primary role should be entrusted to a specialist in palliative medicine.

5. Establishing the rules for admitting patients with other diseases to the hospital, including the so-called planned admissions.

In the current wave of the COVID-19 pandemic in Poland, treatment of infected patients has been entrusted to infectious and isolation hospitals. Such organisation of medical services causes the employees of these very hospitals to face the dilemmas raised in the text. An analysis of the effects of the pandemic will confirm the effectiveness of the adopted organisational structure of health care, or will force changes to include other hospitals in the active treatment of patients infected with the COVID-19 virus. Therefore, it is worth preparing the hospital for each of the possible variants.

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