Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Critical care during a pandemic —Are we prepared for the ethical dilemma?

Dear Editor,

1. The patients' perspective

The need of evidence-based medicine characterized by skepticism, thoughtfulness, responsiveness and clinical agility in daily practice during the present coronavirus disease 2019 (COVID-19) pandemic was recently highlighted [1]. During times of crisis and scarce resources, this concept still applies, even when introducing measures such as triage. Thus, the greatest good of critical- and intensive care facilities can be allocated to eligible patients, therefore maximizing life years saved [2]. The focus should of course lie on the patients' individual autonomy when raising questions like *"What would you want to happen if your health gets worse during your COVID-19 illness?"*. Under conventional care conditions, self-determination is a basic right; however, during a crisis, public interests may supersede individual liberty [2,3]. In addition, patients likely overestimate the success rate of interventions such as resuscitative attempts, rendering them poorly prepared for end-of-life situations [4]. While in low-resource environments, critical care structures are already scarce, the key questions globally remain the same: Who receives access, and when is withdrawal in cases of non-responsiveness or deterioration justified? [5] Clear definitions and guidelines should help caregivers and patients alike to adapt to this highly unusual situation [6].

2. A multi-facetted strain on healthcare providers and -recipients

Patients are confronted with a severe psychological strain: Having to think about a potential end-of-life situation due to COVID-19 adds up on top of the exceptional general circumstances (e.g., social distancing), afflicting already stretched resilience [7–10]. Acknowledging resource constraints when discussing goals of care, the potential need for triage decisions, and the safety of medical personnel justifying selective constraints on intensive care measures round up the picture of a huge burden for all parties involved. Emotional support and spiritual care can be offered for some alleviation [2]; however, in the post-crisis period, these lessons learned should induce a process to improve structures and resources for future similar events [10,11].

3. From shortage to rejection

While in the first months of the pandemic, a vaccination was a desired yet distant prospect, and a discussion around vaccinating specific population groups before others evolved [9], the tide has now turned in many first-world countries: The vaccine is actively rejected by certain groups, and demonstrations against anti-COVID-19 measures are happening. Partly being organized with the hidden agenda of disseminating extremist ideas [12], this development often stems from a mistrust towards established political systems – rooted in minority and socioeconomically disadvantaged communities, and fueled by social media campaigns and fake news [10,13-15]. Countermeasures as involving scientific experts in the ongoing discussion are only sometimes productive [14,16], and even highly educated population groups may be in need of additional information around vaccinations to increase an informed decision making [13]. For already-stretched healthcare personnel, the violation of the moral principle not to inflict harm upon others through their own actions [17] is hard to take – for instance, if you can directly see a demonstration outside through the hospital window when you are about to intubate a critically-ill COVID-19 patient [11]. If a global anti-vaccination movement should gain more momentum, this of course stretches far beyond COVID-19 and will inflict healthcare for decades to come [6,18,19].

4. Are potential future COVID-19 patients prepared?

So far, laypersons' knowledge about potential clinical courses of COVID-19 probably originates from media coverage. However, those with the highest risk for an unfavourable course are the still unvaccinated, not susceptible for scientific educatory measures [14,16]. But are they then prepared for the possibility of intensive care on the one- and resource shortage on the other hand? Will they have an understanding of the situation, when, for instance, extracorporeal membrane oxygenation (ECMO) is unfeasible or unjustifiable [20] in their case? What if a vaccinated and an unvaccinated patient both need the last available intensive care unit bed? Special targeted programs with an attempt to educate risk groups may be feasible to boost both health literacy and vaccination rates, and should therefore be quickly developed [16].

5. Conclusion

Present and potential future COVID-19 patients facing the necessity of critical- and intensive care on the one- but resource scarcity on the other hand are likely to be insufficiently prepared for triage or end-of-life situations. A multifaceted strain on healthcare providers and -recipients in terms of stretched resilience further aggravates the problem. Individuals and groups rejecting necessary measures against the pandemic or even a readily-available vaccination may be especially unprepared for their high risk of unfavourable outcomes following a possible infection.

Conflicts of interest

None of the authors have any potential conflict of interest.

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