



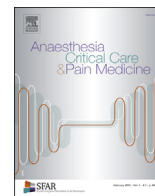
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Editorial

COVID-19 case profile is changing with the vaccine



The COVID-19 pandemic has dramatically changed our world in just one year. There were no other events since World War II, which had so deeply impacted all segments of our societies. The strain on the health care systems has been huge in some countries, particularly in most of the Western ones, which have chosen to fight the pandemic with a mitigation strategy. Europe and Americas implemented non-pharmaceutical interventions calibrated and aimed at avoiding overwhelming health services, and in particular intensive care units (ICUs). However, vaccines were approved in less than one year after the full genome sequence of the virus has been published and made available to the entire scientific community. Such rapid development time has never been seen before for any other vaccines or drugs. In addition, delivered vaccines proved highly effective and safe, and some of them, namely the mRNA ones, were highly innovative, since they were the first based on these new technologies ever marketed in the world. However, while global population needed these vaccines on the same time, manufacturers and policy makers had to face shortages in supply chains at all levels. Countries had to define priorities in their vaccination strategies, and most of them followed the World Health Organization (WHO) recommendations [1], prioritising elderly and vulnerable groups, since most of the reported mortality associated to COVID-19 occurred after 50, and mainly after 75 years. On top of that, health care workers were also often prioritised too. Some countries were highly effective in deploying their mass vaccine campaigns, such as Israel, United Arab Emirates, and to some extent the United States, the United Kingdom and Chile, while some other started more slowly, such as the European Union, Russia and China. Many low-income countries had to wait for several more months before starting receiving first doses. Vaccine delivery was either coordinated through a multilateral original initiative named COVAX, under the auspices of the WHO and GAVI [2], or through bilateral deals with China or Russia (since their own vaccines were surprisingly not included in the COVAX package). A few months after the beginning of vaccination campaigns, significant proportion of elderly was already immunised in many developed countries, allowing to notice their first effects, and to foresee upcoming ones. The UK, Israel, but also France reported a shift in the age distribution of patients hospitalised in ICUs [3]. It can probably be attributed to the rapid and massive immunisation of the elderly, although some experts suggested that new emerging variants could have played a role too, if they are associated to more severe forms of the disease in young unvaccinated people, which

is debated. We are now arrived at a crossroad in this pandemic, when there will not be enough vaccine available to allow most countries to shift from their initial strategy aiming to mainly protect the elderly and vulnerable towards a universal coverage strategy. Anyway, vaccines not being approved in children below 16 or 18 (according to the vaccines), universal immunisation scheme cannot even be considered so far. Most countries will have to live for a certain period of time – until the vaccine is available for all – with a pandemic that will start to affect mainly the young segment of the population. Such a situation will not allow avoiding future epidemic waves without implementing additional non-pharmaceutical interventions. In early March 2021, some countries in Central and Southern Europe were experiencing the beginning of a third wave of COVID-19, showing that having vaccinated a small fraction of the population cannot be enough in protecting their countries against circulation of the virus. What is becoming new is the disease profile of this epidemiological situation. We are moving from a disease severely hitting the old people towards a disease where wards will be now filled with almost only young patients. First, between 50 and 75 years, there may be large segments of unvaccinated people who are still at high-risk of dying from SARS-CoV-2 infections [4]. Second, below 50 years, mortality was much lower also because severe forms benefited from early and quality treatments, often thanks to aggressive intensive care. Pushed by the new variants, leading to high levels of circulation of the virus in the community, hospitals can become rapidly overwhelmed with younger patients who will require more often ICUs, for longer stays than the older ones; this is why we must maintain the highest standards of quality care. During the previous waves of the pandemic, older patients were often hospitalised for a combination of reasons, e.g., for severe respiratory symptoms, but also for securing their comorbidities, or their loss of autonomy. Care is often less intensive in very old patients, and even some of them may not have been systematically transferred to ICUs, for avoiding therapeutic relentlessness. Young patients without comorbidities are therefore more often hospitalised for severe forms of COVID-19; they are more often conducted to ICUs; and they spend longer time in order to fully recover. We may then observe a situation where the number of hospitalisations decreases, while overwhelming of ICUs paradoxically increases. We may benefit from lower mortality as long as quality care is available in these young patients, but the profile of COVID-19 will have dramatically changed from the first waves of this pandemic, since most of severe conditions and casualties

will occur in young and healthy patients. To prevent this situation, it seems that an integrated strategy must be urgently implemented at global level, combining ambitious mass immunisation, with a No-COVID approach [5], or at least an aggressive suppression approach, which minimises circulation of the coronavirus.

Conflict of interest

The author has no competing interest to declare.

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