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OVERESTIMATION OF COVID-19: MEDICAL AND SOCIAL ASPECTS

***Sergei V. Jargin**
Department of Pathology, People's Friendship University of Russia, 117198 Moscow, Russian Federation
**Author for Correspondence: sjargin@mail.ru*

ABSTRACT
Covid-19 as a cause of death has been overestimated by some writers. Excessive anti-epidemic measures and lockdowns are harmful for the economy and public health. The irrational use of resources interferes with the regular patient care. In future, the increase in mortality from different causes will probably be ascribed to Covid-19, and subsequent mortality decrease - to "successful" anti-epidemic measures including vaccinations. The harm-to-benefit ratio of mass vaccinations is unclear. Both children and adults can mount immune response to SARS-CoV2 undergoing acceptably low risk. Officially certified vaccines are not always be the same quality as those administered to the broad public. A winner of the "vaccine race" may end up with mass vaccinations by suboptimal vaccines.

Keywords*: Covid-19, Healthcare, Vaccine*

INTRODUCTION

"Died with Covid-19" is not the same as "died of Covid-19". The strongest predictor of death with Covid-19 is multimorbidity (Ecks, 2020). In terms of years of life lost, in view of the advanced mean age of Covid-19 fatalities, the current pandemic will probably score similarly to the 1957 and 1968 influenza (Petersen *et al.,* 2020). The effectiveness of lockdowns, travel restrictions and quarantines is questionable because SARS-CoV-2 is already spreading worldwide like influenza did in the past. Travel restrictions can curb the international spread only if immediate and total. Historical data suggest no change in the speed of flu spread despite the proliferation of travel and human contacts (MacKellar, 2007).

Excessive anti-epidemic measures are harmful for the economy and public health. The irrational use of resources interferes with the regular patient care. The long-term social distancing has detrimental effects on the physical and mental health, in particular, of elderly and handicapped people, contributes to loneliness and depression. In welfare states the socioeconomic damage has been considerable (Fuest, 2020). In less affluent societies, a shortage of foodstuffs is looming (Harris, 2021). The topic is inflated and mixed with politics. The question 'Cui bono?' must be asked to clarify motives behind some Covid-related restrictive policies (Jargin, 2020). The undermining of globalization is another nail in the coffin of freedom and human rights. This is not automatically unfavorable: more order is needed in our age of overpopulation and mass migrations. However, these problems should be openly addressed instead of using pandemics as a pretext for the tightening of screws. The matter is obfuscated while reliability of some published information and statistics is questionable (King and Dudina, 2021). Apparently, supervision and control measures are used to encroach upon civil liberties distracting people from shortcomings of the healthcare, public assistance etc. In Russia, the suppression of individual tourism helps to conceal voluntarism and corruption (Jargin, 2020). Apropos certain military activities are even more efficient distractors. Along the same lines, at the 25 January 2020 meeting of the Politburo of Chinese Communist Party it was proclaimed that "all infected will be concentrated in designated

containment facilities; all those who had contacts (with the infected) will be placed in home quarantine." With these orders from the highest authority, the regime maintained the "iron grip on society" (Shih, 2021). Presumably, the increase in mortality from different causes will be ascribed to Covid-19, and subsequent mortality decrease - to "successful" anti-epidemic measures including vaccinations.

Mass Vaccinations: Potential Adverse Effects

The use of new vaccines entails known and unknown risks. There have been reports on moderate-to-severe side effects of SARS-CoV-2 vaccinations. Statistics are of questionable reliability; adverse effects may be overlooked, ascribed to other causes or obfuscated to comply with policies. Results of surveys may be biased. Owing to the "social desirability" effect, some respondents would write on questionnaires what they perceive as commendable. The social desirability effect has been observed also in conditions of anonymity (Tourangeau and Yan, 2007). The rarity of reports about side effects of Covid-19 vaccinations may be caused by unofficial policies discouraging such reporting. In view of the abundance of unreliable data, the role of theoretic argumentation increases.

An overlap between mechanisms of coronavirus infection and vaccination is related to the spike protein (SP). It can be reasonably assumed that effects of SP observed in Covid-19 would occur to some extent also after administration of vaccines containing SP. The molecular similarity between SARS-CoV-2 vaccines (SP sequences) and some human tissue proteins may cause cross-reactivity and autoimmune conditions. SP binds to angiotensin-converting enzyme 2 (ACE2) receptors on platelets and is presented to the immune system potentially triggering autoimmunity (Zhang, *et al.,* 2020). The down-regulation of ACE2 by SP can lead to endothelial damage (Lei *et al.,* 2021; McGonagle *et al.,* 2021). The latter together with platelet activation would lead to coagulopathy culminating in vaccine-induced thrombotic thrombocytopenia (Favaloro, 2021).

Blood clotting derangements can be caused not only by SP but also by adenoviral vectors in vaccines. There is evidence of synergism between SP and adenoviral vectors (Kircheis, 2021). The vectors elicit a cellular and humoral immune response, bind to circulating platelets provoking their activation and aggregation. Adenoviral-vectored vaccines induce autoimmunity with antibodies to the Platelet Factor-4 (PF4). The chain of events includes microvascular damage, adenoviral vector dispersal, release of PF4 and vaccine-associated immunothrombosis (McGonagle *et al.,* 2021). The above mechanisms underlie the association of adenoviral vector-based Covid-19 vaccines with cerebral events such as venous sinus and splanchnic vein thrombosis, ischemic and hemorrhagic stroke, pulmonary embolism and disseminated intravascular coagulation (Finsterer, 2022; Garg and Paliwal, 2022; Kircheis, 2021; Watts *et al.,* 2022). Moreover, SP binds to T cell receptors enhancing immune reactions (Cheng *et al.,* 2020; Scaglioni and Soriano, 2020). Endothelial cells bearing SP or other viral antigens are attacked by the host immune system resulting in vasculitis, perivascular encephalitis and neuronal damage (CDC, 2021; Greinacher *et al.,* 2021; McGonagle *et al.,* 2021). Encephalitis after the use of adenoviral vector vaccines has been documented; subclinical cases must be more frequent considering headache as a typical post-vaccinal symptom. Of note, encephalitis developed more frequently after the use of adenoviral vector than of mRNA vaccines: 79 cases in 99.3 million doses vs. 20 cases in 110.6 ($p<0.001$) respectively (Zuhorn *et al.,* 2021). Neurological side effects of SARS-CoV-2 vaccinations are usually mild; however, some cases were severe, required hospitalization and admission to intensive care units (Finsterer, 2022). Undiagnosed cases must be relatively frequent considering headache as typical post-vaccination symptom.

An excess of cases of myo- and pericarditis has been recorded after Covid-19 vaccinations (Behers *et al.,* 2022). The supposed mechanism is immune response with inflammatory reactions to SP or SP-coding nucleic acids (Garg and Paliwal, 2022; Istampoulouoglou *et al.,* 2021). As mentioned above, SP can bind to the ACE2 receptor that, among others, acts as a heart protector by counteracting pro-inflammatory effects of angiotensin II (Behers *et al.,* 2022). In the population-based cohort study assessing mRNA-based vaccines vs. controls (~885,000 people in each cohort), the vaccination was associated with an increased risk of myocarditis: the risk ratio was estimated at 3.24 ($p<0.05$) (Barda *et al.,* 2021). In a group of individuals aged 12-39 years, who had recently received a second dose of mRNA-based Covid-19 vaccine, the rate ratio for myocarditis was 10.8 compared to the general population (95% CI 3.2 to 49.0)

(Shimabukuro, 2021). Symptoms of myocarditis usually start 2-4 days post-vaccination being more frequent after the second dose of mRNA vaccines. Chest pain was present in all patients; 67% of them had fever. Heart failure and arrhythmias were observed as well (Dorfman and Murthy, 2021). In another study, myalgia was encountered in 21% of athletes after the first dose of an mRNA-based vaccine and in 37% following a second dose (Hull *et al.,* 2021). Finally, SP has been demonstrated in vitro to penetrate the cell nucleus and inhibit DNA repair (Jiang and Mei, 2021). This may implicate long-term consequences in vaccinated people.

Cases of facial palsy and transverse myelitis have been documented following COVID-19 vaccinations (Finsterer, 2022; Garg and Paliwal, 2022; Kaulen *et al.,* 2022). Recent reports of the neuromyelitis optica manifestations raised particular concerns. Supposedly, COVID-19 vaccines accelerate demyelination (Paybast *et al.,* 2022). Furthermore, patients develop subacute thyroiditis after receiving mRNA, inactivated whole-virus and adenoviral-vectored vaccines. Graves' disease symptoms have been associated with mRNA or adenovirus-vectored type vaccines. Autoimmune and inflammatory conditions following vaccination with SARS-CoV-2 vaccines are rare but tend to be reported increasingly often (Caron, 2022). The frequency of latent cases is unknown as well as potential consequences. It would be interesting to carry out a survey among individuals who first experienced Covid-19 infection and later vaccination, asking the question, when the symptoms were more severe. In the author's case (65 years old; the infection diagnosed in May 2020, Gam-COVID-Vac vaccination in November 2021), the symptoms were clearly more pronounced after the vaccination, the leading manifestation being headache. Other similar cases are known. However, results of the survey will be probably biased because some people would write in the questionnaire what they perceive as officially or unofficially prescribed.

Overtreatment of Covid-19

The hospitalization is associated with stress, risks of nosocomial infections and iatrogenic adverse events. There is an opinion that over-manipulation has sometimes been inspired by the military with the purpose of personnel training. For example, 1478 procedures performed in 977 young patients diagnosed with community-acquired pneumonia at the St. Petersburg Military Medical Academy (Kazantsev, 2004). Invasive methods with questionable indications have been advocated by former military surgeons (Jargin, 2021, 2022). Apparently, similar considerations pertain to China, where some literature advises against non-invasive ventilation methods: "Debate exists regarding the use of high-flow nasal oxygen therapies or noninvasive ventilation for concerns of aerosolization of the virus, so it is commonly not recommended (Cheung *et al.,* 2020). Therefore, these authors and many others have come to a reasonable conclusion that it is best to intubate earlier in the disease progression. The authors also observed a high rate of pneumothorax (5.9%) after intubation" (Aziz, 2020). In the above-cited article (Cheung *et al.,* 2020) it is written: "If manual bagging is required, we suggest gentle ventilation via a supraglottic device instead of bag mask ventilation" (Cheung *et al.,* 2020). The main reason of these recommendations is the concern about staff safety because non-invasive ventilation is supposedly associated with the virus aerosolization (Cheung *et al.,* 2020; Aziz, 2020). Both endotracheal tube and supraglottic (laryngeal mask airway) ventilation is associated with adverse effects (Strametz *et al.,* 2018). Prioritizing the personnel's safety over that of patients is potentially contradicting to the principle "Primum non nocere" (First do no harm). Note that critically ill patients are averagely much older than the staff thus undergoing higher risks (Remuzzi and Remuzzi, 2020); it would be against medical ethics to decide in favor of intubation to protect caregivers from the virus. Initial suggestions for early intubation of Covid-19 patients may have caused harm (Zareifopoulos *et al.,* 2020a). To prevent the overtreatment, it should be stressed that the basic airway management principles apply to known or suspected Covid-19 cases, as they do with other critically ill patients (Brown *et al.,* 2020). With regard to infectious aerosols, better ventilation of rooms reduces the airborne time of respiratory droplets. This is important for hospital settings where the aerosolization by coughing and medical treatments is common (Somsen *et al.,* 2020). The possibility of intubation should be discussed with patients preferably on admission, so that they could make an informed decision (Zareifopoulos *et al.,* 2020b). This is of importance for Russia, where the paternalistic attitude to patients and occasional disregard of the informed consent principle are known (Jargin, 2021,

2022). Besides, the over-manipulation and overtreatment related to Covid-19 has included unnecessary repeated testing, X-rays, polypharmacy with overuse of steroids, anticoagulants, antiretrovirals, antirheumatics and other drugs. In this connection, adverse effects have been noticed e.g. mucormycosis (Devnani, 2021). Components of cocktail formulations may exert antagonistic effects (Saha *et al.,* 2022).

DISCUSSION AND CONCLUSION

Effects of SP, observed in Covid-19 patients, can to some extent appear after administration of vaccines containing SP or inducing its synthesis by the body. In addition, adverse events after vaccinations may be caused by adenoviral vectors, other components and contaminants in vaccines. This may depend on the manufacturing quality. Blood clotting disorders are of particular importance (Lundstrom *et al.,* 2021). A promising approach would be experiments with animal models (Vandeputte *et al.,* 2021) and human volunteers using various vaccines, comparing the levels of blood clotting (e.g. D-dimer) and other markers. The D-dimer level is usually elevated in patients with post-vaccinal clotting disorders (Favaloro, 2021).

The harm-benefit ratio of mass vaccination with different vaccines remains unclear. Healthcare providers should be vigilant for side effects of Covid-19 vaccinations; further research is needed especially of late consequences. Both children and adults can mount immune response to SARS-CoV2 undergoing acceptably low risk. There is an opinion that it is unethical to impede the access to natural immunity (Hart, 2020). In children, influenza is supposed to be more dangerous than Covid-19 while adverse effects of vaccination are insufficiently known. A recent systematic review demonstrated that natural immunity in individuals recovering from Covid-19 is comparable to the protection by complete vaccination of naïve people, with the possibility of enhanced durability of protection from the natural immunity (Block, 2021; Shenai *et al.,* 2021). In future, countries implementing strictest measures may find themselves with a weaker protection by natural immunity. The vaccine quality e.g. undeclared components are of importance for the risk of side effects. In addition to adenoviral vectors, vaccines may contain various substances of human and viral origin, immunogenic proteins and other contaminants (Kircheis, 2021; McGonagle *et al.,* 2021). Certified preparations are not necessarily always the same quality as those administered to the public. Political pressures for rapid approval of vaccines may result in distribution of preparations having unstable quality. A winner of "the race for a vaccine against SARS-CoV-2" (Pascolo, 2021) might end up with a mass vaccination by suboptimal vaccines. There have been few reports from Russia about blood clotting-related, cardiovascular and other adverse events after injections of Gam-COVID-Vac and other vaccines (Denisenko *et al.,* 2021; IMA, 2021, 2022). The number of unreported/undetected cases is unknown. The documentation reliability of side effects remains questionable, as it has been with some other medical statistics in Russia (Jargin, 2017). On the other hand, reports on side effects of renowned vaccines do not necessarily imply higher risks but indicate that they are better studied (Mouliou *et al.,* 2022). There are perspectives to eliminate some side effects by development of synthetic mono-antigenic vaccines (Pascolo, 2021).

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