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Short Communication

The Myth of the Corona Monster

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The death toll, collapse of national health systems, and inability to arrest the worldwide spread of the Corona virus may seem in the eyes of the general public a fight against a sophisticated blood thirsty monster. Not only that the current devastating situation may justify such perception, scientific ignorance and fear-borne superstitions amplify the anxiety and lead to imagination of the virus as an unstoppable beast. On top of this, the terminology used in the media pictures the virus as a live creature with ambitious killing intensions. However, this perception is far from being true. First, we should not forget that this virus is a piece of RNA (ribonucleic acid) and not a live creature (creature definition: at least one cell surrounded by a biological membrane). Thus, rather than scaring the public, it could be wise to discuss in simple words the chemical nature of the virus as well as its possible origin and why does it pose a worldwide concern. Second, the redundant declarations and optimistic promises by non-professionals cannot assuage or calm down a scared public. People require logical explanations with at least putative solutions that leave some hope. Third, an international council supported by national committees of medical as well as communication experts is required to lift some pressure and better explain why may we anticipate dissipation of the virus. Such explanations can capitalize on the description of strategies and means to combat future viral as well as microbial threats, and also illustrate how previous horrible pandemics finally dissipated.

No doubt, globalization of economy and transportation along with explosion of human population enhance disease spread. We have learnt nowadays that borders closure and police and army regulations not necessarily stop this spread. Hence, in the absence of appropriate vaccine and efficient curing drug, the strategy that held sway thus far was isolation of people, cities, and entire districts. Despite this seemingly successful strategy in China and South Korea, the increasing death toll in Europe and the US implies that the world is not ready and probably unable to overcome this frightening situation. Considering a horrifying possibility of a worse future biological threats, it is critical to develop preventive and curing means, directed by the World Health Organization and supported by national brain-storming committees. Such efforts should consider development of multi-potent vaccines (e.g. monoclonal antibodies directed against viral families and based on common sequences or structural entities. The putative feasibility of such idea is currently reflected on efforts to protect infected patients by administration of purified serum derived from cured patients that survived the viral attack. The success of this initiative may be limited if the Corona virus interaction with human cells differs from that of other members of this viral family (SARS and MERS). Another putative possibility might rely on the viral need for an enzyme (polymerase) enabling multiplication of its RNA genome. Arrest of polymerase activity might stop viral propagation, but it may concomitantly affect the host. Therefore, we should seek for a way to eliminate viral propagation with minimum effect on the host. Here we may capitalize on the vast difference in RNA polymerase activity for viral multiplication compared to the lower activity rates required by the host. This difference may be exploited to arrest viral propagation in an approach similar to the so called 'pulse-chase' experiments in biochemistry. In these experiments a radioactive isotope (usually ^{14}C or ^{32}P) is used for a short duration to label freshly synthesized macromolecules (proteins, nucleic acids), and then is washed out, enabling follow up of the fate of the labeled molecules. A similar approach may be adapted to arrest polymerase activity by an inhibitor administered for short time intervals, each entailed by drug washout or dilution. Favipiravir (T-705; 6-fluoro-3-hydroxy-2-pyrazinecarboxamide) is an example of an antiviral drug that selectively inhibits the RNA-dependent RNA polymerase of influenza and some related viruses. It might be beneficial to examine whether such a drug or other existing drug derivatives would also affect the Corona polymerase.

None the less, it should be emphasized that such medical approach does not mean that infected individuals and populations should not be isolated to eliminate virus spread, as is practiced presently worldwide. The dangers to humanity imposed by biological threats put a big question-mark on the advantages of globalization. Have we approached the stage where over-populated world along with globalization endanger our existence? Sadly, as long as international conflicts lead to violence and the world is busy in developing new mass-destructive warfare, including biological weapons, humanity is exposed and under threat. Surprisingly, despite the fear, only little has been done to prevent and withstand such global disasters. Allegorically, human populations and international relationship are reminiscent of a bacterial culture growing in a flask. As long as the cells have sufficient resources to thrive, their growth is exponential. However, when density cannot be tolerated and the life supporting resources decline, many cells die and other would survive by feeding on degradation products of the dead (plateau in the growth curve). Then in the absence of sufficient resources the culture begins to collapse (decline of the growth curve) and most cells die. Would humanity extinct one day in a similar fashion?. Another questionable

point is how and where was the Corona virus created. Since it is not a live creature, its progenitor belonged most likely to the SARS or MERS viral families, as indicated by the 72.8 similarity of their nucleic acid sequences. Since DNA and RNA are always prone to some rate of mutations that are either detrimental or corrected by various internal mechanisms, the question is whether such natural rate of mutations may explain the creation of Covid-19. Since the Covid-19 RNA sequence differs approximately 27% from other members of the SARS family, the natural rate of mutations can hardly explain its formation unless it happened under strong selective pressure and recombination events allowing substitution of entire RNA sequences. Since the virus is just a chain of nucleic acids, it is hard to consider a feedback mechanism responsible for such genetic capability. This raises a strong suspicion that the Corona virus has not been created by random genetic events. If true, the most rational conclusion would be that the strong selective pressure and recombination events that led to the formation of Covid-19 were directed by human hands, and insufficient control measures allowed the escape of the viral product out of its experimental niche. Not only that such a conclusion is terrible, the continuation of arms race and development of mass destructive biological weapons may seem to an extraterrestrial visitor the most foolish direction taken by mankind.

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