Commentary

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Corona Virus (Covid–19) Antidote and Role Of Nanotechnology With Pollution In The Environment

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1. Abstract

The coronavirus infectious disease (COVID – 19), which started in late 2019, was found to be caused by the SARS – CoV – 2 virus. The samples collected were from three age categories – below 18, 18 – 49 years, and 50 and above. The Delhi government is likely to conduct another sero survey from October 1 to assess the prevalence of antibodies. This virus has already infected hundreds of thousands of people and led to tens of thousands of unclaimed deaths, with the numbers still rising quickly as of this writing, affecting essentially every country whole around the world. Persons infected with SARS – CoV – 2 present with a wide range of symptoms similar to other respiratory infections (e.g., fever, cough, and shortness of breath) or may be silent killers or transporters and carriers. The communal spread of COVID – 19 is a major concern. The availability of a cost – effective, rapid point – of – care diagnostic test available to doctors in emergency rooms, clinics, and community hospitals is a critical and highly remarkable issue. These diagnostics enable frontline workers/ worriers to triage patients simply and to prevent the further spread of the virus. Unlike convalescent plasma, the supply of monoclonal antibodies isn't dependent on blood donations and can be scaled up to potentially reach more and more people. A single infusion of its monoclonal antibody – a manufactured copy of an antibody produced by a patient who recovered from Covid – 19 treatment – was shown to drastically reduce levels of the coronavirus in newly infected patients and lower the likelihood of requiring hospitalization.

2. Keywords:

COVID – 19; Coronavirus; Health Indicators; Convalescent Plasma; Antibodies; Blood Plasma; Covid Survivors, Isolation; Testing; Antidote; Nanotechnology Materials; Vaccine Development and Pollution Levels (Air, Water, Noise and Land Quality);

3. Introduction

The global economy has collapsed due to the coronavirus (COVID – 19) pandemic [1, 2, and 3]. New strain variants, a lack of social self – control, and optional vaccination all increase the likelihood that COVID – 19 will persist and behave like a seasonal sickness. All nations are developing plans to gradually resume their economic and social activities since the socioeconomic situation has grown unsustainably [4, 5]. The COVID – 19 pandemic prompted countries to impose strong limitations throughout 2020, portraying a scenario of decreased hospital visits that is unprecedented and the use of "Artificial Intelligence" (AI), "Machine Learning" (ML) "Deep Learning" (DL) and the "Internet of Things" (IoT) – "Based on the Management of the Pandemic. AI – Based Approaches to Analyze, Detect, Classify and Predict the Trend of the Deadly Disease were Developed" [6].

Since its inception in 1956, AI has been studied to create "Intelligent Agents" devices that can sense their surroundings and respond in ways that increase the possibility that they will succeed in attaining their objectives . AI in healthcare started with the creation of expert systems,

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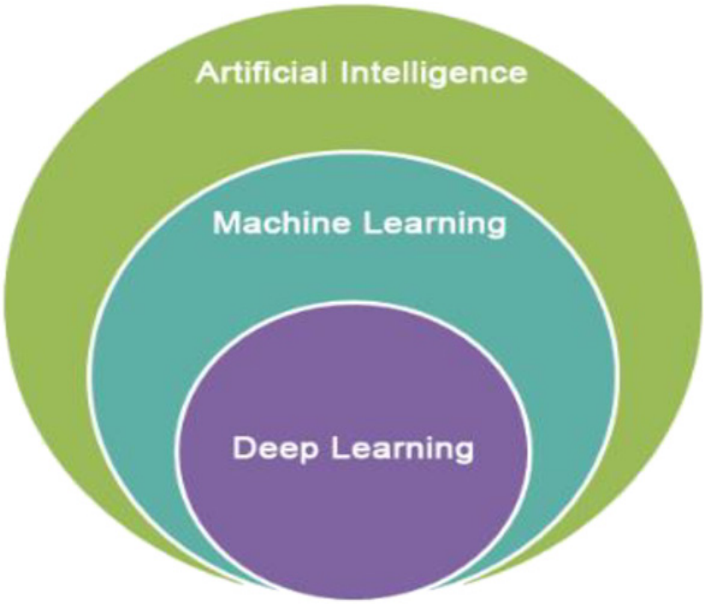
which were based on rules gleaned from expert interviews, and then translated and programmed. This expert system involves the use of AI for the analysis, learning and deduction of inference from data. AI techniques have three methods, they are DL, ML and AI itself. The relationship between "Artificial Intelligence" (AI), "Machine Learning" (ML) and "Deep Learning" (DL) is depicted in Figure 1 [7].

Figure 1: Artificial Intelligence (AI)/ Machine Learning (ML)/ Deep Learning (DL) Relationship.



4. Materials and Methods

In a trial of more than 450 newly diagnosed Covid – 19 patients, 5 of 302 patients who received the drug ended up being hospitalized – 1.7%. But 9 of the 150 palliative/ placebo patients ended up in the hospital – 6% – meaning there was a 72% reduced risk of being hospitalized for patients who received the antibody versus those who received a sample placebo. Data were analyzed using a multilevel or multidimensional – modelling approach and it is the first potential treatment for patients with mild or moderate Covid occurrence [8, 9]. (The two other treatments that have proved helpful, the antiviral remdesivir and the steroid dexamethasone, are only for extremely seriously ill people). Scientists used blood plasma from Covid survivors, isolating and testing their antibodies to find the most powerful ones' antidotes and then manufactured containers/ vats of antibodies to make the drug [0]. Diagnostics are critical in determining the spread of an infection and mass surveillance with rapid diagnostics helps public health officials to monitor virus spread, proactively identify areas with increasing infections, anticipate surge capacity needs, and deploy needed resources to the appropriate areas, regions, and places [11]. The success of such a system hinges on clear and transparent collaboration and communications between federal and state/ principal public health laboratories, hospitals, government agencies, NGOs, and other communities. The "World Health Organization" (WHO) and others have argued that widespread testing will be needed to stop this pandemic transmissible syndrome.

"World Health Organization" (WHO) and the "World Meteorological Organization" (WMO), were appreciated sources for official evidence. Subsequently, by the end of April 2020, the COVID – 19 pandemic has led to plentiful environmental impressions, both positive and Negative such as enriched air and water quality in urban areas, and deleterious, such as shoreline pollution due to the discarding of hygienic consumable items as disposing of used "Personal Protective Equipment" (PPE) properly at work like Mask Covers or Gloves, PPE Kits, etc. Even outside of the pandemic, proper waste management and disposal are paramount important. Currently, used face masks, gloves, and other PPE are generally considered as hazardous waste due to the infectious nature of COVID – 19 [12].

Technologies play an important role in pandemics and IDs detection and prediction. The IoT can help by creating an early warning system to stop the spread of dangerous diseases. Integrated IoT networks, advancements in data analytics, AI, and universal networking on a worldwide scale are yet required to achieve this. These have been extremely beneficial for many aspects of humanity, especially in terms of preventing contagious diseases. A global network of IoT sensors in the healthcare sector offers both short – term and long-term benefits. Healthcare professionals and legislators have been able to follow any person who has been "Compromised" as they pass through border controls. This would make it possible to focus on quarantine and, provide quick care, which would stop the coronavirus and other dangerous diseases from spreading. Long – term negotiations for the creation of a global early warning system should begin between large multinational organizations like the WHO and the United Nations. Such a tool could identify IDs before they spread globally. Worldwide emergencies, like the coronavirus, cause a number of fatalities, heightened stock price volatility and instability. A global detection system will clear up this uncertainty and give decision – makers the financial chance to react rapidly to pandemics and emergencies affecting all aspects of public healthcare [13, 14].

5. Results and Discussions

Nearly 33% of Delhi's population – about 6.6 million people – may have developed antibodies against Covid – 19, according to the initial analysis of the third sero survey in which 17,000 samples were collected from 11 districts. Eli Lilly has already started manufacturing 10,000 doses in hopes that these interim results, which have not yet been peer – reviewed, will bear out the circumstances [15, 16]. The company plans to discuss the state of the trial with regulators such as the US Food and Drug Administration, as well as the possibility of emergency use authorization to market the drug. Vaccines are instrumental in preventing disease by boosting the immune system against a pathogen. One vaccine being evaluated is a "messenger RNA" (mRNA) – "Lipid Nanoparticle" vaccine based on the previous studies of SARS – CoV and the "Middle East Respiratory Syndrome" (MERS). Novavax's vaccine, NVX – CoV2373, based on "Recombinant Protein Nanotechnology" (RPN), is undergoing

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late – stage Phase – III trials in the US. The findings of the Phase – I study that enrolled 130 healthy volunteers had shown it prompted coronavirus – specific antibodies (anti – spike IgG antibodies) in all volunteers after a single dose, with many of them developing wild – type virus neutralizing antibodies; after a second dose, all volunteers developed wild – type virus – neutralizing antibody. The "Serum Institute of India" (SII) had recently struck a licensing agreement with "Novavax" for making its vaccine for India and other low – and middle – income countries.

AI technologies show significant effectiveness in assisting decision-makers in the virus management process. Allam and Jones (2020) [17, 18] urged the use of AI and data – sharing regulatory mechanisms, to improve worldwide knowledge and control of urban health during the COVID – 19 epidemic. For instance, when AI is combined with IoT devices deployed in many smart cities for early epidemic detection, further benefits can be realized. When medical data is gathered and distributed throughout and within smart cities. Rao and Vazquez (2020) [19] proposed a phone-based online questionnaire to collect people's travel histories and common indicators. The acquired data may be evaluated using ML algorithms to study and predict the risk of infection, allowing for the early identification of high-risk cases for isolation. It limits the virus's propagation to susceptible persons. In a recent review of DL detection research applications, challenges, and future directions [20]. The study focused on the review of DL applications in healthcare featuring abdomen, cardiac, pathology, retina and diabetic retinopathy. The review did not consider the detection and prediction of pandemics.

The development and extent of COVID – 19 under the control of environmental features validate the scientific awareness for the collective revisions of coronaviruses on one side and socio – ecological systems (including the interaction between climate, water, air, noise and soil) on the other side [21]. As a result, coronaviruses in general have been considered to expect their societal and environmental impression. This has instantaneous application to the COVID – 19 virus and furthermore, summarizes relevant knowledge on the causative agent, pathogenesis and immune responses, epidemiology, diagnosis, handling and controlling of the disease, resistor and anticipation approaches of the COVID – 19. From an anthropocentric perspective viewpoint, the pandemic may lead to a more "Supportable and Sustainable Future", including increased resilience of the socio – ecological systems or shorter capacity chains, which is a "Positive Expansion and Growth" [22].

6. Conclusions

Our community has a chance to accelerate the translation of our developments and deploy nanotechnology advances as frontline apparatuses and tools. Those treated with the drug reportedly also had fewer symptoms, and the levels of the virus in their bodies fell/ plummeted. Life as we knew it before this pandemic has been forever altered and in the fight against COVID – 19, research and technology development and deployment are our best weapons. Nanotechnology tools can be adapted to detect, to treat, and prevent this disease, and "Nano" is here to help disseminate contributions and strategies for fighting the COVID – 19 pandemic, which are safer and well competent and there were no serious side effects, Eli Lilly reported. Other companies are also working on treatments with monoclonal antibodies, but they are difficult and expensive to make. The "Serum Institute of India" (SII), in partnership with the "Indian Council of Medical Research" (ICMR), is likely to start the "Clinical Trials" (Human Trials) next month of Covid – 19 vaccine candidate developed by Maryland, US – based Novavax. A single dose could be costly as well. They offer only a temporary solution, with the antibodies lasting about a month. But without a "Vaccine" (Antidote) – the only way to elicit a lasting immune response – the treatment could give doctors another weapon in an arsenal with few and adequate options.

The advancements of new specific techniques would be of great interest for controlling the environmental dissemination of coronaviruses, and more precise and extended monitoring would favour the collection of more pertinent information. Early developments with this catastrophe have revealed that monitoring of socio – ecological conditions is critical for an early interpolation to limit the scale of the epidemic and the pandemic hazards. "Data, apparatuses, tools, and lessons learned may provide significant improvements in preparation to fight potential pandemics in the future". The societal and economic measures assumed to contain the pandemic led to local, regional, and global impacts, both negative and positive, spanning from immediate to long – term consequences too. The full assessment of the impacts is far from being possible with an ongoing disaster of impressive fraction and fabulous complication, and this paper initiates numerous guidelines to be tracked by further research. This global crisis has influentially established that catastrophic research work pragmatic, climate change negotiation and ecosystem services must reconsider their premeditated and incorporated development considering even the most unlikely proceedings. Eventually, the COVID – 19 pandemic will determine philosophical changes in social and economic behavior at the planetary as well as global scale, and this study highlights the "Environmental Impact Mitigation Measurement in the Natural Ecosystem" of the consequential impacts resulting from the evolving pandemic through Nanotechnology, Pollution, Ethics, Clinical, and Medicinal Approach, and Society.

The previous and recent COVID – 19 pandemic has inspired scientists to use various learning algorithm techniques to detect and predict the future occurrence of the pandemic. The current situation calls for a more accurate, more efficient, less complicated and inexpensive system that is capable of both the detection and prediction of pandemics and IDs. Although there are numerous diagnostic techniques for identifying pandemics such as SARS – CoV – 2 infection, DL techniques happen to be one of the most widely used AI technologies to battle this pandemic. It has contributed in no small measure in curbing the pandemics as well as prevent its spread. This paper intends to find out various DL – based techniques and their contributions towards the detection and prediction of pandemics, "Furthermore, this paper presents the state – of – the – art review of research activities about how AI/ DL/ ML techniques have contributed to the detection and prediction of pandemic in terms of

pandemics monitoring systems, classification human activity recognition, data fusion, collecting vital signs of patients among others. In this survey, we reviewed more forty – four (44) published research papers written in a decade from 2013 to 2022 were reviewed". In order to understand the significance of DL contributions and limitations for the pandemic control. Hence, the current studies has contributed to the body knowledge by providing a comprehensive overview of the current state – of – the – art research in the field of AI particularly DL – techniques for the detection and prediction of COVID – 19 pandemic, identify gaps in the existing literature, and provide guidance for future research directions [23]. This survey addresses and identifies a vacuum in the field by summarizing and assessing existing research that applied DL techniques for the detection and predictions of pandemics in their publication and identifies gaps in the existing literature for the purpose of future research direction in this aspect. An analysis of the different studies based on DL techniques for the detection and prediction of pandemic has been performed. The primary goal of this study is to provide researchers with some crucial research briefings that may help them create more effective and robust DL – based approach, which will be efficient and effective for the detection and prediction of pandemic. In order to explore the advantages of DL techniques better in the area of detection and prediction of pandemics and IDs control and prevention, this study considered varying challenges and alleviates them in different aspects such as feature selection, recognition, optimization and computational complexity.

Environmental Impact: On top of this, there are also many questions about mitigating PPE waste. Indeed, numerous case reports have indicated that discarded masks or gloves that are single – use could negatively impact the environment. Covid – 19 related single – use masks and respirators will be used over the subsequent years, significantly contributing to the pollution in our landfills and oceans. As a response, companies should step up with green initiatives such as recycling, or disposal of used masks environmentally – friendly manners. The "Role of Nanotechnology" community can contribute significantly to the fight against COVID – 19. Nanomaterials have been used for several research objectives and targets for the nanotechnology civic development of point – of – care diagnostics, carriers for therapeutics, and multilevel – models as a methodological approach for vaccine development podium/ platform [24]. "COVID – 19 Negative Effects on Human Beings as Loss of Lives, but Positive Effects on Natural Environment as Increase in Air; Water, Noise and Land Quality on Environmental Part is that "Pollution Levels" has also been Reduced Vigorously as well as Tremendously".

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