ScienSage

Journal of Advanced Scientific Research

Available online through http://www.sciensage.info

ISSN
0976-9595
Review Article

NATURAL HERD IMMUNITY VIS-À-VIS INDIAN SOCIETY IN COVID-19 PANDEMIC SITUATION

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ABSTRACT

In the absence of any operative treatment or biomedical prevention, people are *adopting various alternatives globally including lockdown to dispose of the pandemic disease i.e. Covid-19*. However, prolong lockdown is not feasible for an overpopulated developing country like India. Some are in favor of adopting natural herd immunity as the younger population of India is much high to tackle the present situation. The health infrastructure of India is insufficient to withstand the burden from natural herd immunity. The information related to human immunity system against this novel pandemic disease COVID-19 is also very scanty. So expose of people for development of natural herd immunity is a very dangerous strategy. However, through the restricted scientifically partial exposure to natural herd immunity the virus will complete building of its own pool in the community, and the peaks are most likely to arrive during this period. It seems after this peak, natural herd immunity may develop and we will be benefitted within few months.

Keywords: Corona virus, COVID-19, Natural, Herd immunity, Lockdown

1. INTRODUCTION

A report of twenty nine cases having pneumonia symptom with unidentified etiology was submitted at WHO office, (Wuhan, China) on 31st December 2019. On the basis of genetic sequence, it was identified as novel β-coronavirus on 12th January 2020. The disease was named as COVID-19. This novel COVID-19 is a fast dispersing disease [1- 4]**.** Within five months of its first report, it has spread in more than 210 countries [4]. There is no operative treatment or biomedical prevention againstCOVID-19 [5]. In the absence of these, people are adopting various alternatives to dispose of this pandemic disease. The effort is being made by various means such as through personal protection (e.g., hand washing, face covers),orders for stay-at-home, environmental cleaning, physical distancing, academic institute closures, and workplace restrictions at the national, state, and local levels [6].

During the successful recovery from a contagious disease, immunity develops against the disease within the concern patient. Likewise, when this immunity develops within a significant portion of the population (or herd), it is called herd immunity. This herd immunity protects the individuals whose immunity yet to be developed as it becomes difficult for the virus to catch and attach to a new host. Thus, the spread of the infection is halted and ultimately the population becomes immune. In general, it is attained by means of vaccination [7]. Due to the unavailability of an effective vaccine against the Covid-19, the basis of herd immunity hinges on the emerging natural immunity as a community is living with the natural infection of the virus necessary immunity to resist a fresh attack.

To fight against the pandemic COVID-19, most of the countries are adopting the lockdown method. Actually, it is a preventive measure to check the spread of COVID-19 till for any alternative (e.g., effective vaccine) available. However, it is not possible to afford a prolonged period of lockdown for any country at least a developing country like India. So searching for an alternative is inevitable. To adopt any alternative it practicability must be thoroughly checked. Through this article an attempt has been made to highlight the effects of the natural herd immunity against pandemic COVID-19 in perspective of Indian population.

2. FACTORS FAVOURABLE FOR ADOPTION OF NATURAL HERD IMMUNITY

2.1. Young generation

India has a disproportionately young population. Around 93.5% of India's population is younger than 65years which makes India a place for successful implementation of the strategy for natural herd immunity [8]. This population would face less risk of hospitalized and death.

The supporters are of the opinion to allow the virus to be unleashed in a controlled way for the next seven months would give 60% of the country's people immunity by November, and thus the disease will halt [8].

2.2. Economic affairs

Prolong lockdown is not affordable for any country at least the country like India. Prolong lockdown halts economy of a country through gradual ruining country's the financial condition. Poverty, hunger and malnutrition may lead to the daily assassination of several thousands. However, though the fatalities may remain very high with the approach of herd immunity, but some experts contend that this approach provides India the paramount chance to open up trades by November of this year to normalize the situation including the country's economy [8].

2.3. Effective social distancing is quite impossible

The infeasibility of social distancing in crowed living situations like in many cities and villages in India, the want of testing kits to spot infections and the human grief that occurs in lockdown suggests a different path may be needed in these places. Had we strictly enforced 100% use of face masks when out of the home? It is known to us that 100% effective lockdown is not expected on the cultural and behavioural (poor sense of discipline) ground. It has been very leaky in the best of communities [9].

2.4. Prevalence of death and weakness due to other diseases during lockdown

More people would have died from virtually any of other deadly diseases that stalk our lives. Nearly 1,000 persons die from infections of respiratory tract alone every day. These infections spread in similar ways to Covid-19. Sharing a crowded and insanitary housing would have increased the diseases during the lockdown. Simultaneously, there was an abrupt reduction in the number of patients pursuing health care in various parts of the country. Scarce public-health resources have been reallocated to focus on Covid-19 preparedness. Deaths due to deterioration in the care for chronic diseases such as diabetes, cancer, and heart disease may have increased as a consequence of prolonged lockdown [10].

3. FACTORS AGAINST THE ADOPTION OF NATURAL HERD IMMUNITY

3.1. Hypothetical concept

To date no country has adopted a natural herd immunity concept, allowing free mixing among their citizen for the protection of the nation. Though initially the U.K. adopted, but early in the pandemic it was abandoned. The reason of such comeback was the realization of the overwhelmed health care system through hospitalization. The brief dalliance is still being liable for the British government's slow response in the testing of the virus. Experts have suggested allowing the young people to become infected while isolating the older population. However, this strategy has now become controversial globally. It is not clear about the amount of immunity requires in the population and the amount of immunity person acquires from infection [7, 11]. The chance of recovery of the two categories (child and aged) is much uncertain after infection. Nevertheless, the immune reaction to COVID-19 is still in mystery and definitive data on post infection immunity is lacking [12]. The given coronavirus only made its debut in humans sometime late last year, there's still a lot that's unknown. Immunity from the virus may be a more complex process than expected. Thus, natural herd immunity is a dangerous proposition. The herd immunity is normally applied to decide the number of vaccinate people to protect the non-vaccinated people [13]. Generally, antibodies (IgG and IgM) produce against novel coronavirus in 1 to 3 weeks after infection. However, few people look as if no development of humoral immune response as reveals by detectable antibodies. Due to unavailability of the meticulous clarification behind such happening, the relationship between antibody response and clinical improvement is not clear. At present the information on the host innate immune status of COVID-19 patients is limited, elevated total neutrophils and decreased total lymphocytes in COVID-19 patients presenting as mild and severe disease were found to be significantly different [1, 14].

3.2. Unethical

Even in a country like India with a high young population, the concept has inherent risks. Allowing people to become infected will certainly bring numerous additional patients to hospitals. The experts are of opinion that India will have the immediately develop critical care and isolation-bed capability to ensure that the

several waves of patients don't become sufferers before herd immunity is reached. It is now established that COVID-19 is specifically fatal for the aged population and the people with surviving conditions. So, depending on a hypothesis allowing populations to get infected and live through it is as extremely dangerous.

3.3. Pollution and comorbidity

Due to exposure to the high pollution in the Indian cities and industrial areas resulted in high rates of hypertension and diabetes among the young population. This has accelerated compromised immune systems, leading to compromised young people's health [15]. On this ground, the mortality rate of viral infection could be higher than estimated. People may let them down and fall social distancing guidelines.

3.4. Public health facilities in India

India already has an overstretched public health care system with a relatively low number of health functionaries. The density of physicians (7.8 per 10,000 population) and nurses (21.1 per 10,000 populations) is low as compared to the world average [16]. As compared to developed countries with a nurse-to-physician ratio of 3:1, India's ratio stands at around 0.6:1. This becomes a matter of utmost concern as the majority of the facilities are concentrated in the urban areas catering to only 30% of India's population [17]. The total number of government hospitals functioning in India is 27,984 and the total number of beds available in those hospitals is 7,10,761. A government hospital covers, on average, a total population of 47,631, and there is only one government hospital bed for the population of 1875 [18]. With this health facility, it is high risk to go for natural herd immunity. At present, 1,919 dedicated COVID hospitals having 1,73,746 isolation beds, and a total of 21,806 ICU beds are available, as reported by the Ministry of Health and Family Welfare on 17th April [18].

4. DISCUSSIONS AND CONCLUSIONS

The uncertainty around the novel coronavirus with non-availability of vaccine flashes several distresses to the country's public health system. Inspite of prolonged hard lockdown along with various precautions, the situation is not improving rather deteriorating. The number of confirmed cases of COVID-19 is 1,58087 along with the death of 4534 cases as on 28th May [19]. An average new confirmed case with around seven thousand daily, during the last week, is a bad sign for India. Several factors may be there such as spreading of infection was much more prevalent before starting, proper lockdown is not followed, number of asymptotic patients is vast etc. It is noteworthy that through lockdown the size of the infection has restricted to a large extend through the earnest activities of local health workers like ASHAs, anganwadi workers, and ANMs that are trained for surveillance activities under the guidelines of the Integrated Disease Surveillance Program [20, 21].

Coronavirus has stood us inform of double edged sword, economy and health casualty. However, it is the high time to think about the alternative (s). We should keep in mind acquiring "herd immunity" through exposing people to the virus is a very risky concept due to inadequate Indian health infrastructure as well as very scanty knowledge in related to the human immune system in response to this novel COVID-19 [12]. It is better to adopt a balance way. The population in between 16 to 60 years should come back to normal life with adequate precaution. The many venerable people should keep with sufficient protection. In spite of adequate precautions the work group (16-60 age group people) will expose to the coronavirus naturally to some extent. Due to this exposure of the people in the age group to corona virus in such population will be able to withstand the severity of impact will fewer casualties. A small number of people will be in a critical situation and need to hospitalize or need intensive care, ventilation thus less death without massive exposed young population. Simultaneously, quarantine, testing and isolation will be continued. The virus will continue the building its own pool in the population [22]. Like other epidemic disease, invariably the curve of infections will eventually flatten and then drop.

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