Utility of Vaccination adopted in India for children to fight against COVID-19

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ABSTRACT

The immune response developed in Indians through the vaccination program may affect the much needed capability to fight for our lives against the war with COVID-19. This study aimed to support the utility of vaccines to fight against various diseases, and to explore why there is a possibility that Indians may have genetic and regional advantages against this pandemic disease. Books like Essential pediatrics by DR. Ghai and various articles, WHO (World Health Organization) website, etc were referred for this review article. Some more information was obtained using keywords such as vaccination in India, immunity, research articles, COVID-19, WHO etc. The result is based on the various studies done regarding the utility of different vaccines on respiratory disorders, non-specific effects of these vaccines in neonates and in elders. It can be concluded that a background of an essential and compulsory vaccination programs in India may have been providing and may provide in the near future, the much needed immunity to tackle and eradicate coronavirus and the need of a thorough research for an authentic basis.

INTRODUCTION

Indians seem to have genetic or immunological advantages against coronavirus and several factors seem to be playing a role as the number of deaths due to coronavirus in India are less as compared to other countries. One of the factors may be the immunological response of the people, which has strengthened due the spontaneous exposure to several types of pathogens over the last few decades (Mehra, 2020).

Talking about immunity, it can be active and passive both. Active immunity is considered as the protective response of the body either through a vaccine having live or killed pathogens or it can eventually develop when the person is exposed to that pathogen which has affected him or her previously. Immunization is considered to be highly efficient as it is a cost-effective child survival intervention (Remy et al., 2015) and As a result of various immunization programs, small pox has been completely eradicated, poliomyelitis is eliminated from several countries and there has been decreased incidences of measles, tetanus and diphtheria. The Expanded Program of Immunization (EPI) was introduced by WHO in 1974, for the welfare of young children and pregnant women, at global level. It was adopted in India in 1978 and it included vaccines such as Bacillus Calmette Guerin (BCG), diphtheria along with tetanus toxoids and whole cell pertussis (DTwP), oral poliomyelitis (OPV), and typhoid vaccines. Urban areas were chiefly included. The Uni-
Universal Immunization Program (UIP) came in 1985 for widespread immunization in India including infants and age groups above it (Ghai, 2013).

In the late 90’s and the early years of 20th century, several vaccines were developed and were given under the roof of immunization programs to cope up with the infectious diseases increasing specifically in India.

Recently the world has been having its ups and downs after the encounter with coronavirus disease. The coronavirus disease outbreak was identified in Wuhan district of China in December 2019 and later due to its severity and spread in the whole world, it was labeled as Pandemic by WHO in March 2020. In India the disease was first identified in Kerala in January 2020.

The aim of this article is such that, the immune response developed in Indians through the vaccination program may affect the much needed capability to fight for our lives against the war with COVID-19. Relevant literature like GHAI Essential Pediatrics were explored and information was extracted from various web pages and sites such as WHO official website, PubMed, The Economic Times web page, theprint.in etc. Other information was obtained using keywords such as vaccination in India, immunity, research articles, COVID-19, WHO etc.

MATERIALS AND METHODS

Through the various studies conducted regarding the off target effects of vaccines, which are referred in this article, it is observed that with the ongoing pandemic disease it may act as a tool for immunological modulation for the required resistivity towards this disease. In this article it can be observed that, through the various immunization programs adopted in India and other developing countries for neonates, it provides resistivity not only to the target disease but also to other diseases and overall it all comes upon our immunological response. It may be affiliated with the greater recovery rate of the positive cases of coronavirus in India because our current method of fighting is only social distancing and our own immunity along with isolation.

RESULTS AND DISCUSSION

According to WHO total new cases as of data received from national authorities by 10:00 CET, 10 April 2020 is given in Table 1, (WHO, 2020).

As perceived from the data collected by WHO whether it is about the number of new cases in a day or the total no. of cases in different countries right from the break of this pandemic differs drastically (Table 1).

One of the reasons may be the testing and confirmation of the infection, which widely differs in every country, which means in those areas where there are higher no. of tests and investigations done, shows higher no. of confirmed cases, whereas in countries like India it may be due to lack of testing facilities which shows rather low no. of confirmed cases, as such it is just an assumption.

But this may be one side of the coin, while if it is thought about, the other side of the coin may be that we may be blessed with a stronger immune system culminated through various immunization methods and greater emphasize on the diet and lifestyle (which is given great importance in the Indian System of Medicine i.e. Ayurveda). Usually a vaccine is a substance which provides protective mechanism against one or several diseases by inducing the production of antibodies. However it is observed that certain vaccines like Bacillus Calmette Guerin (BCG) which is an attenuated vaccine for tuberculosis caused by the pathogen, Mycobacterium bovis, provides protection against not only tuberculosis but also other diseases, some of which cause acute respiratory tract infections (Hollm-Delgado et al., 2014).

One study also shows that the BCG vaccination in elderly once a month for three consecutive months gives significant prevention against acute upper respiratory tract infection (Wardhana et al., 2011). Several other studies conducted in accordance with other vaccines like DTP and measles for their epidemiological evidence concerning the non-specific effects of these vaccines also shows promising effects (Higgins et al., 2014). In neonates having low birth weight, early BCG vaccination reduces mortality rate upto 40% as a result of prevention of primarily septicemia and pneumonia in a study conducted in Guinea-Bissau, West Africa adds up to the fact that this vaccine may help in the increment of neonatal immune response (Jensen et al., 2015).

A news in The Economic Times states that the countries without universal policies of BCG (Bacillus Calmette-Guerin) vaccination, such as Italy, Netherlands, United States, etc have been more severely affected compared to countries having BCG policies like India, etc. According to US scientists, BCG vaccine given in India to infants for tuberculosis (TB) disease can be an overhaul for treatment policies of coronavirus (The Economic Times, 2020). Even minute work can give us a large ray of hope and an authentic data is required to confirm the effect of BCG vaccine over SARS(Severe Acute Respiratory
Table 1: Total new cases as of data received from national authorities by 10:00 CET, 10 April 2020

<table>
<thead>
<tr>
<th>Situation in Numbers</th>
<th>Total (new) cases in last 24 hours across the world</th>
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<tbody>
<tr>
<td>Globally</td>
<td>1,521,252 confirmed (85,054) 92,798 deaths (7277)</td>
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<tr>
<td>European Region</td>
<td>799,696 confirmed (40,035) 66,213 deaths (4697)</td>
</tr>
<tr>
<td>Region of the Americas</td>
<td>493,173 confirmed (38,463) 17,038 deaths (2264)</td>
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<tr>
<td>Western Pacific Region</td>
<td>117,247 confirmed (1395) 3978 deaths (34)</td>
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<tr>
<td>Eastern Mediterranean Region</td>
<td>88,657 confirmed (3307) 4607 deaths (148)</td>
</tr>
<tr>
<td>South-East Asia Region</td>
<td>12,978 confirmed (1402) 569 deaths (101)</td>
</tr>
<tr>
<td>African Region</td>
<td>8789 confirmed (452) 382 deaths (33)</td>
</tr>
<tr>
<td>WHO Risk Assessment</td>
<td>Global Level Very High</td>
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</tbody>
</table>

Syndrome. This is an encouraging development and a good initiative for the treatment purpose. However, whether this is the only reason for lower positive cases and mortality rate in India compared to other countries, still needs to be studied and if it is as such, then we have a very productive approach to counteract coronavirus disease.

CONCLUSIONS

This study concludes that a background of an essential and compulsory vaccination programs in India may have been providing and may provide in the near future, the much needed immunity to tackle and eradicate coronavirus disease. But a thorough research is needed to support this statement because one can’t rule out this correlation completely, it will be a surprise though if it helps in this crisis.

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Conflict of Interest

Nil.

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REFERENCES


The Economic Times 2020. US scientists link BCG vaccination with fewer coronavirus cases, Indian scientists hopeful but cautious.
