



BCG VACCINE EFFECTIVE DURING COVID-19 PANDEMIC-A STUDY OF 200 SUBJECTS

*Vinod Parkash Jerath

India.

*Corresponding Author: Vinod Parkash Jerath

India.

Article Received on 05/10/2020

Article Revised on 25/10/2020

Article Accepted on 15/11/2020

INTRODUCTION

A Corona Virus disease named Corona virus-2019(COVID-19) coming from Wuhan(China) has become a worldwide emergency and called a pandemic recently with differing morbidity and mortality in different countries. Initially with a highest incidence in Wuhan area of China, later the maximum number of patients affected were in USA, India, Brazil. According to the population of India nearly 1.35 billion, the percentage of patients & mortality is relatively low. This may be due more mutated virus, higher immunity or the BCG vaccine programme which is given at birth and it has a lifelong immunity. The effect of BCG vaccine is still under investigation and our aim to clarify this thing.

Bacille Calmette-Guerin a live attenuated tuberculosis vaccine. Initially used for the protection of its populace in developing countries, its effect to prevent tuberculosis & other disease useful for other disease like leprosy, carcinoma of the urinary bladder, many viral diseases like verrucae produced by papilloma group of viruses has been under estimated and unrelated pathogens like staph aureus and candida albicans, viral infections, auto-immune disease & aphthous ulcers.

BCG vaccination of adult humans induced circulating monocytes having an increased capacity to produced pro inflammatory cytokines.^[1] Also the vaccination of BCG normal healthy volunteers showed an increase in the capacity of natural killer(NK) cell to secrete pro inflammatory Cytokines such as IL-1B & IL6 and then BCG Vaccine may play a role in COVID-19 pandemic.^{[2][5]}

BCG Vaccine is given at birth or in early childhood induced a long lasting immunity not only against tuberculosis but also in unrelated pathogens & protection against respiratory infections and neo natal diseases and causes epigenic modification on monocyte immune cell which may anticipate protection against COVID-19. Hence relative to countries where BCG is a natural health program, the countries had shown a higher rate of morbidity and mortality.^[3] And even up to 10 times less morbidity as well as mortality (4&5).

Previously it was thought that there was no good effect of BCG vaccine for COVID-19(6) but a study showed the mean of the case per population is statistically significantly lower in 138 BCG vaccinated countries

versus 37 non-BCG vaccinated countries.^[8] Another analysis showed no actual relationship between BCG vaccination reduced cases of severe COVID-19.^[8]

However, World Health Organization does not recommend BCG vaccination for COVID-19 because the diversion of local supplies may result in neonates not being vaccinated, resulting in an increase of disease & deaths from tuberculosis.

But a US study which analysed data from 178 countries claims that having a universal BCG vaccination policy shows a lower death rate due to COVID-19 that those that don't.

Italy which used social distancing norms but had never used BCG is having a higher number of cases and deaths as compared to Japan who were vaccinating since 1947 but had no social distancing norms and performing better. this essentially means BCG can to some extent help protect un related infections as well. It trains the body's immune system to generally fight better against the infection

However BCG is contra indicted immune compromised people as well as pregnant women.

MATERIAL AND METHODS

200 patients 150 males and 50 females near or over 40 years with no co morbidity were selected, who were already vaccinated at birth were re vaccinate & BCG was administered as 0.1 ML intra dermally into the skin over deltoid muscles, mostly known patients or relatives or doctors or neighbours were included so that follow up

could be easy, otherwise many patients get lost. The picture of many are given in different stages but all the pictures are to be printed are not within the scope of this paper. All the patients belong to Punjab state of India, where as such the number of COVID patients is a little less but for the last 2 weeks it is increasing. The patients had no co morbidities like Diabetes, patients on chemotherapy too were not included. They were re vaccinated because it is felt that by age of 40 the immunity provided by BCG is reduced and hence they were given BCG to know whether they contracted with COVID 19 or not. Children were not included in the study. The patients were followed up for 6 months (a longer follow up will be presented in part 2 of the article) and it was observed that only 2 patients 1+1 i.e. male and female were infected and others were safe. The doctors included were not working on COVID patients. Population wise this infectivity is too less and there was no mortality.

Though the less number of COVID patients may be due to some genetic reasons as we see in some other infectious diseases like leprosy which is maximum in the state of Tamil nadu, West Bengal, Bihar and Uttar Pradesh. In Punjab till 1980 practically a few cases of leprosy were seen but due to migration of works from these states the number of patients is occasional. In Maharashtra state (India) the first author already seen 50 patients of leprosy in a month or two and done Histopathology.^[9]

OBSERVATIONS

All the 200 patients were observed monthly personally or by telephone and only 2 patients (1 male and 1 female) got a infected by COVID-19 which is very very significant and too low for populace of 1.3 billion people of India or 15 Lakhs people of Punjab. A study of BCG vaccine on 174 persons included doctors, nurses, ward boys, close contact of COVID patients reported 3 to 4 persons getting COVID-19 and got well with self-quarantine (the Tribune dated 10-09-2020 page 3 column).^[5]

CONCLUSIONS

Much has already been authored by many authors including the present author about the COVID-19 V.P Jerath.^[11] Since COVID-19 has shaken the world both as morbidity and mortality and one is flabber ghasted to watch the economy of each country going south wards and the disease is likely to lasts for 1 year or more till the vaccine against COVID is available to the whole world, and 2 to 3 months for antibodies to generate. We have a personal opinion till such time BCG vaccine should be produced in more quantity and given to as many persons above 40 years as possible so that COVID-19 does not take so much of human toll, though WHO does not recommend this for reason cited in the article.

ACKNOWLEDGMENT

We are thankful to Mr. Anil Soni for helping in writing

this article.

REFERENCES

1. Lai CC, Shih TP, Ko WC, Tang HJ, Hsueh PR. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and corona virus disease-2019 (COVID-19): the epidemic and the challenges. *Int J Antimicrob Agents*, 2020; 55(3): e105924.
2. Ayoub BM. COVID-19 vaccination clinical trials should consider multiple doses of BCG. *Pharmazie*, 2020; 75(4): 159.
3. Gursel M, Gursel I. Is global BCG vaccination-induced trained immunity relevant to the progression of SARS-CoV-2 pandemic? *Allergy*, 2020; 75(7): 1815-1819.
4. Dr. Jerath V.p - European Journal of Bio medical and Pharmaceutical Sciences Vol-7, Issue-6 Year 2020(Corona virus: An overview of their Replication & Pathogenesis)
5. Sharquie IK. BCG is a good immunotherapeutic agent for viral and autoimmune diseases: is it a new weapon against Coronavirus (COVID-19)? *Electron J Gen Med.*, 2020; 17(6): em229.
6. Meena J, Yadav A, Kumar J. BCG vaccination policy and protection against COVID-19. *Indian J Pediatr*, 2020; 57(6): 588-589.
7. Ozdemir C, Kucuksezer UC, Tamay ZU. Is BCG vaccination affecting the spread and severity of COVID-19? *Allergy*, 2020; 75(7): 1824-1827.
8. Miyasaka M. Is BCG vaccination causally related to reduced COVID-19 mortality? *EMBO Mol Med.*, 2020; 12(6): e12661.
9. *Lepr India* 1982 Jan; 54(1): 130-4. Diversities in clinical and histopathological classification of leprosy V P Jerath, S R Desai.