Original Research Article

Study of clinical trials for the management of COVID-19 outbreak registered in the Clinical Trial Registry-India

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ABSTRACT

Context: After China, now COVID-19 is spreading all over the world in about 212 countries and territories. In India, over 46008 active, 22454 recovered, 2293 death, and 1 migrated case (a total of 70756 cases) has been reported till 12th May 2020.

Aims: This study has been designed to review the currently registered clinical studies in Clinical Trials Registry-India. The study provides the overall summary and insight into diagnostic tools, treatment, and preventive strategies for COVID-19.

Settings and Design: All the clinical trials (including clinical studies) registered in Clinical Trials Registry-India between 31 March 2020 to 11th May 2020 were reviewed and analyzed.

Materials and Methods: The registered studies in CTRI (ctri.nic.in) were searched in the “Trial Search” option with keywords such as “COVID-19”, “Corona Virus”, “SARS-CoV2”, and “2019 nCoV”.

Statistical analysis used: NA.

Results: A total of 57 trials over COVID-19 have been registered in CTRI within the last three months (i.e. 1st March 2020 to 11th May 2020). These trials include 40 interventional trials and 17 clinical studies. The interventional studies include the drug, biologics, ayurvedic, homeopathic, diagnostic, nutritional, and process of care change.

Conclusions: The world is combating against the COVID-19 outbreak. The availability of new health intervention against COVID-19 needs the more scientific, and collaborative center of attention towards drug development and clinical trials for COVID-19.

Key Messages: The fast track approval of clinical trials, effective study design, making informed consent more “inform”, planning and scientific consideration over sample size, development of data safety monitoring board to supervise and ensure trial participant’s safety may enforce the successfulness of trial completion.

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1. Introduction

On 31st December 2019, Wuhan, China has officially reported the first case of severe acute respiratory syndrome coronavirus (SARS-CoV) to WHO. Which was named as COVID-19 by WHO on 11 February 2020.¹ After China, now COVID-19 is spreading all over the world in about 212 countries and territories. More than 3.5 million cases of COVID-19 and 250,000 deaths have been reported to WHO till 7 May 2020.² In India, over 46008 active, 22454 recovered, 2293 death, and 1 migrated case (a total of 70756 cases) has been reported till 12th May, 2020.³

The use of preventive measures such as social distancing, personal hygiene, use of personal protective equipment, and social awareness plays an important role as to prevent the spread of COVID-19.⁴ Despite the use of preventive measures, appropriate medical care, symptomatic treatment, and supportive care are an important management option. Several agents such as antiviral drug, immunomodulating...
biologicals, and hydroxychloroquine proposed to have efficacy against COVID-19.\(^5\) Till now, Remdesivir of Gilead is the first antiviral drug has been approved by Japan for the treatment of COVID-19.\(^6,7\)

The objective of this study is to review the currently registered clinical studies in Clinical Trials Registry-India. The study provides the overall summary and insight into treatment strategies, diagnostic tools, and preventive strategies for COVID-19.

2. Materials and Methods

The Institutional Ethics Committee approval was not required for the conduct of the study. All the clinical trials (including clinical studies) registered in Clinical Trials Registry-India ((ctri.nic.in) between 31 March 2020 to 11th May 2020 were reviewed and analyzed. The registered studies were searched in the “Trial Search” option with keywords such as “COVID-19”, “Corona Virus”, “SARS-CoV2”, and “2019 nCoV”. The studies mentioned any of the search keywords in their study title or objective or inclusion criteria were selected for the study. The studies/trials were first categorized in an interventional and observational study and further analysis was done over study design, approval status, subject type to be recruited, recruitment status, etc.

3. Results

A total of 57 trials over COVID-19 have been registered in CTRI within the last three months (i.e. 1st March 2020 to 11th May 2020). The majority of registered clinical trials/studies are from New Delhi followed by Maharashtra and Uttar Pradesh (Figure 1). These trials include 40 interventional trials and 17 clinical studies. The interventional studies include the drug, biologicals, ayurvedic, homeopathic, diagnostic, nutritional, and process of care change (Figure 2). The interventions registered for trials are (a) drug includes Hydroxychloroquine (HCQ), Imatinib, Ivermectin, Ciclesonide, Niclosamide (b) biologicals include Convalescent plasma, BCG (c) ayurvedic include Kashaya, ZingiVir H, MyVir tablets, Dabur Chyawanprash, Shanshamani Vati, Yashtimadhu tablet, Guduchi tablet (d) homeopathic include Cadamba drug therapy, Arsenic Album, Bryonia Alba, Gelsemium, Antimonium Tartaricum, Crotalus Horridus (e) diagnostic include Chest X-Ray Artificial Intelligence Module, CT - Scan of Thorax Artificial Intelligence Module, Voice Sampling Artificial Intelligence Module (f) nutritional include SSV formulation and (g) process of care change include Povidone Iodine, Lowest driving pressure guided PEEP. Under trials, these interventions administered either alone or in combination with other drugs and compared with placebo (If applicable), the standard of care, or supportive care (Table 1).
| Reg. ID | Intervention | Randomization | Blinding | Subject | Sample Size | Recruit-ment Status | Estimate Duration (Months) | Phase | State  |
|---------|---------------|---------------|----------|---------|-------------|---------------------|------------------------|-------|--------|
| 03/024402 | Grp A: Hydroxy Chloroquine Grp B: Hydroxy Chloroquine (HCQ)-ICMR regimen | Yes | Open | Healthy Human Volunteers | 500 | Not Yet | 3 | III | Kerala |
| 04/024479 | Grp A: Chloroquin Phosphate Grp B: Standard care | Yes | Open | COVID-19 Patients | 32 | Not Yet | 6 | NA | Karnataka |
| 04/024806 | Grp A: Imantinib Oral Drug Grp B: Standard care | Yes | Open | COVID-19 Patients | 100 | Open | 2 | II | New Delhi |
| 04/024729 | Grp A: Topical Nasal 0.03% chloroquine eye drops Grp B: Standard Care | Other | Open | COVID-19 Patients | 60 | Not Yet | 6 | II | New Delhi |
| 04/024904 | Grp A: HCQ high dose (HCQh), Hydroxychloroquine sulfate (HCQs) Grp B: HCQ AZT | Yes | Double | COVID-19 Patients | 300 | Not Yet | 12 | III | Uttar Pradesh |
| 04/024858 | Grp A: Ivermectin Grp B: Standard treatment as per hospital protocol for COVID 19 | No | Open | COVID-19 Patients | 50 | Not Yet | 12 | NA | New Delhi |
| 04/024948 | Grp A: Ciclesonide, Hydroxychloroquine, Ivermectin Grp B: Satandard care of treatment | Yes | NA | COVID-19 Patients | 120 | Not Yet | 6 | II | New Delhi |
| 04/024949 | Grp A: Niclosamide Grp B: Satandard care of treatment | Yes | NA | COVID-19 Patients | 48 | Not yet | 3 | II | New Delhi |

*Continued on next page*
| Study ID     | Group A                  | Group B                  | Yes/No | Open/Single arm | COVID-19 Patients | Outcome | Duration | Location         |
|-------------|--------------------------|--------------------------|--------|-----------------|-------------------|---------|-----------|------------------|
| 05/025067   | Hydroxychloroquine along with Standard care Personal protective equipment | Standard care Personal protective equipment | Yes    | Open            | 10990             | Not Yet | 12        | New Delhi        |
| 04/024773   | Chloroquine or hydroxychloroquine | Local standard of care, Lopinavir with Ritonavir (ditto) plus Interferon, Lopinavir with Ritonavir (orally twice daily for 14 days), Remdesivir | Yes    | Open            | 7000 (Global), Open | 1500 (India) | 12        | III Maharashtra  |
| 05/024959   | Best supportive care with Itolizumab | Standard of care | Yes    | Open            | 30                | Not Yet | 3         | II Maharashtra   |
| 05/025022   | Hydroxychloroquine      | Symptomatic treatment    | Other  | Open            | 166               | Not Yet | 12        | II New Delhi     |
| **Interventional-Biologics** |                         |                          |        |                 |                   |         |           |                  |
| 04/024804   | Convalescent plasma     | NA                       | Single arm | NA     | COVID-19 Patients | 10      | Not Yet | 3         | II Karnataka     |
| 04/024915   | Convalescent Plasma     | Yes                      | Open   | COVID-19 Patients | 100               | Not Yet | 24        | II New Delhi     |
| 05/025013   | BCG plus standard of care as suggested by DCGI | Saline plus standard of care | Yes    | Single         | COVID-19 Patients | 60      | Not yet  | 3         | II Maharashtra  |
| Study ID  | Group A | Group B | Intervention/Outcome Assessor | Participant Count | Status | Recruitment Duration | Enrollment Site |
|-----------|---------|---------|-------------------------------|-------------------|--------|----------------------|-----------------|
| 04/024749 | Yes     | Triple  | COVID-19 Patients             | 5946              | Not Yet | 12                   | Maharashtra     |
| 04/024706 | Yes     | Open    | COVID-19 Patients             | 20                | Not Yet | 3                    | New Delhi       |
| 04/024846 | Yes     | Triple  | COVID-19 Patients             | 40                | Not Yet | 6                    | Gujarat         |
| 04/024833 | Yes     | Triple  | Healthy Human Volunteers     | 1826              | Not Yet | 12                   | Pondicherry     |
| 04/024775 | Yes     | NA      | COVID-19 Patients             | 52                | Not Yet | 6                    | New Delhi       |
| 05/024989 | Other   | NA      | COVID-19 Patients             | 200               | Not Yet | 24                   | Telangana       |
| **Interventional-Ayurvedic** | | | | | | |
| 04/024882 | NA      | NA      | COVID-19 Patients             | 30                | Not Yet | 12                   | Haryana         |
| 04/024883 | Other   | Outcome Assessor | COVID-19 Patients | 112 | Open | 6 | Kerala |
| 5/024967  | Single arm | NA | COVID-19 Patients | 30 | Not Yet | 6 | Karnataka |

*Continued on next page*
| Project Code | Grp A | Grp B | Intervention Type | Yes | Open |healthy Human Volunteer | Number | Status | Phase | Location |
|---------------|-------|-------|-------------------|-----|------|------------------------|--------|--------|--------|----------|
| 05/024981    | Dabur Chyawanprash Grp B: Milk | Yes | Open | Healthy Human Volunteer | 600 | Not Yet | 8 | NA | Rajasthan |
| 05/025069    | Grp A: Shanshamani Vati or Sudarshana Ghanavati or Ashwagandha Grp B: NA | Single arm | Open | Healthy Human Volunteers | 1324 | Not Yet | 3 | III | New Delhi |
| 05/025093    | Grp A: Yashtimadhu tablet Grp B: NA | Other | NA | Healthy Human Volunteers | 1200 | Not Yet | 1 Month, 15 days | II /III | Andhra Pradesh |
| 05/025088    | Grp A: Guduchi tablet Grp B: Nil | Yes | NA | Healthy Human Volunteers | 1200 | Not Yet | 6 | I/II | Andhra Pradesh |

**Interventional Homeopathic**

| Project Code | Grp A | Grp B | Intervention Type | Yes | Open | COVID-19 Patients | Number | Status | Phase | Location |
|---------------|-------|-------|-------------------|-----|------|-------------------|--------|--------|--------|----------|
| 04/024857    | Homeopathy Medicines - Ars Alb, Camphora, Bryonia Alba, Helleborus niger, Justicia Adhatoda. | Yes | Open | COVID-19 Patients | 100 | Not Yet | 1 | II | Maharashtra |
| 04/024905    | Grp A: Homoeopathic Medicine: Arsenic Album, Bryonia Alba, Gelsemium, Antimonium Tartraricum, Crotalus Horridus Grp B: Placebo | Yes | Single | COVID-19 Patients | 100 | Not Yet | 3 | III | Uttar Pradesh |
| 04/024947    | Grp A: Cadamba drug therapy Grp B: NA | Yes | NA | COVID-19 Patients | 100 | Not Yet | 3 | III | Maharashtra |
| 04/024925    | Grp A: Homoeopathic Medicine Grp B: Placebo | Yes | Open | COVID-19 Patients | 1000 | Not Yet | 2 | II | Maharashtra |

*Continued on next page*
| Study ID     | Group A: Homoeopathic Medicine | Group B: Placebo | Study Design | No. of Patients | Follow-Up | Grade | Location       |
|-------------|--------------------------------|------------------|--------------|----------------|-----------|-------|----------------|
| 04/024926   | Arsenic Album, Bryonia Alba, Gelsemium, Antimonium Tartaricum, Crotaulus Horridus | NA               | Single arm   | 100            | Not Yet   | 2     | Uttar Pradesh  |
| 05/024969   | Yes                            | Open             | COVID-19 Patients | 100           | Not Yet   | 3     | Uttar Pradesh  |
| 05/024986   | Single arm                      | NA               | COVID-19 Patients | 10000         | Not Yet   | 6     | New Delhi      |
| **Interventional-Diagnostic** | | | | | | | |
| 04/024776   | No                             | NA               | COVID-19 Patients | 1650          | Open      | 3.5   | Rajasthan      |
| 05/024983   | Single arm                      | NA               | COVID-19 Patients | 30            | Not Yet   | 1     | New Delhi      |
| **Interventional-Process of care change** | | | | | | | |
| 05/024962   | Yes                            | NA               | COVID-19 Patients | 96            | Not Yet   | 3     | Andhra Pradesh |

*Continued on next page*
| Study ID   | Intervention                                      | Arm A                                      | Arm B          | Number   | Status   | Duration | Region     |
|-----------|---------------------------------------------------|--------------------------------------------|----------------|----------|----------|----------|------------|
| 05/025071 | Low driving pressure guided PEEP                  | Yes                                        | Single         | 40       | Not Yet  | 12       | New Delhi  |
|           | Conventional lung protective ventilation strategy (ARDSnet protocol) |                                           |                |          |          |          |            |
| 04/024659 | Nutraceuticals                                     | Single arm                                 | NA             | 30       | NA       | 6        | Maharashtra|
|           | SSV formulation                                   |                                            |                |          |          |          |            |
|           | NA                                                |                                            |                |          |          |          |            |
| Reg. ID   | Purpose                                                                 | Study Design         | Subject          | Sample Size | Recruitment Status | Estimate Duration (Months) | State       |
|----------|--------------------------------------------------------------------------|----------------------|------------------|-------------|--------------------|---------------------------|-------------|
| 04/024473 | COVID-19 Registry and Validation of C2D2 (Critical Care Data Dictionary) | Retrospective data collection | COVID-19 Patients | 50000       | Not Yet            | 256 M, 30 days            | New Delhi  |
| 04/024697 | Formulation of a Clinical databank by consolidation of Indian data.      | Retrospective data collection | COVID-19 Patients | 100000      | Not Yet            | 24                         | New Delhi  |
|           | **Observational Studies-Prospective**                                    |                      |                  |             |                    |                           |             |
| 04/024442 | Screening for symptoms of COVID-19                                       | Follow up study       | COVID-19 Patients | 5000        | Not Yet            | 4                          | New Delhi  |
| 04/024413 | Assessment of Knowledge, attitudes, and fear of COVID-19                 | Cross Sectional Study | Healthy Human Volunteers | 1000       | NA*                | 14 days                    | Dhaka Bangladesh |
| 04/024482 | evaluating the prophylactic efficacy of different regimens against SARS-CoV2 infection (COVID-19) in asymptomatic health care workers | Virtual Registry Study | Healthy Human Volunteers | 10000      | Open               | 24                         | Tamil Nadu |
| 04/024784 | Assessment of Anxiety and depression during covid-19                     | Cross Sectional Study | Healthy Human Volunteers | 1000       | Not Yet            | 12                         | New Delhi  |
| 04/024636 | Objective clinical scoring system to rule out COVID-19 with high sensitivity | Cohort Study         | COVID-19 Patients | 1000        | Not Yet            | 3                          | Rajasthan  |
| 04/024805 | Impact of Covid-19 pandemic on practice pattern of Indian urologists     | Survey               | Healthy Human Volunteers | 160        | Not Yet            | 7 days                     | Uttar Pradesh |
| 04/024772 | Comparison of suspected with confirmed cases of COVID-19                 | Cohort Study         | COVID-19 Patients | 90          | Not Yet            | 2                          | New Delhi  |

*Continued on next page*
| Study ID | Study Title                                                                 | Study Type               | Participants | Status  | Duration | Location       |
|---------|------------------------------------------------------------------------------|--------------------------|--------------|---------|----------|----------------|
| 04/024859 | Clinical characteristics and treatment Outcome of COVID-19 Patients         | Cross Sectional Study    | COVID-19 Patients | 1000    | Not Yet | New Delhi     |
| 05/025010 | Hydroxychloroquine prophylaxis in Covid 19 infection                          | Follow up Study          | Healthy Human Volunteers | 2000    | Not Yet | New Delhi     |
| 04/024914 | Characteristics of seriously ill COVID-19 patients                          | Cohort Study             | COVID-19 Patients | 60      | Not Yet | New Delhi     |
| 05/024982 | Effects of using hydroxychloroquine and azithromycin in the treatment of confirmed COVID-19 positive patients | Cross Sectional Study    | COVID-19 Patients | 50      | Not Yet | Chhattisgarh   |
| 05/025041 | Radiographic findings and their temporal changes in COVID-19 positive patient | Cohort Study             | COVID-19 Patients | 200     | Not Yet | New Delhi     |
| 05/025070 | Issues and challenges in cancer patients on active treatment during the COVID-19 | Cross Sectional Study    | COVID-19 Patients | 150     | Not Yet | New Delhi     |
| 05/025089 | Effect of Hydroxychloroquine on QTc Interval                                  | Cohort Study             | Healthy Human Volunteers | 50      | Open    | Uttar Pradesh  |
| 05/025091 | Knowledge status of public about COVID 19 disease prevention and control     | Cross Sectional Study    | Healthy Human Volunteers | 125     | Not Yet | Tamil Nadu    |

* A study from Bangladesh registered in CTRI but not recruiting the subjects from India
4. Discussion

The CTRI launched on 20th July 2007 is directed by the ICMR-National Institute of Medical Statistics, New Delhi, India. The CTRI is an online, free of cost and searchable platform for the registering all clinical studies prospective being conducted in India and was made mandatory by 1st April 2018. In the current pandemic situation of COVID-19, the discovery and development of a new drug is not an easy task. As the number of COVID-19 cases increasing progressively, the preventive medical option is in high demand. According to WHO, 2118 clinical trials have been registered on WHO international clinical trials registry during COVID-19 pandemic from all over the world and in this context China is on top. Despite, this much number of clinical trials registration all over the world, not a single drug (except Gilead-Remdesivir) is approved for the treatment of COVID-19.

In India, 57 trials have been registered in CTRI for COVID-19 diagnosis, treatment, prevention and to assess treatment outcomes of existing therapies. Fourteen out of 40 interventional trials are in phase III and above of clinical trials and surprisingly, only two of these trials are open for recruitment. The average duration of completion of interventional trials is 6.3 months.

4.1. Treatment strategies

4.1.1. Anti-malarial

HCQ is an anti-malarial drug, which had been proved as having antiviral activity. In a study from China also stated that the HCQ may be a potential treatment option for COVID-19. In CTRI, seven drug trials investigating the effectiveness of Hydroxychloroquine (HCQ) for the treatment of COVID-19.

4.1.2. Antiprotozoal

In CTRI, Ivermectin and Niclosamide two antiprotozoal drugs have been registered to investigate treatment effectiveness for COVID-19. In the 1970s, Ivermectin was recognized as “Wonder Drug” because of its wide application in human and animal health. A study demonstrated the antiviral activity of ivermectin in it inhibit bovine herpesvirus 1 DNA polymerase nuclear import and interferes with viral replication. Niclosamide is an antiprotozoal drug having wide antiviral application; effectiveness as COVID-19 treatment could be expected.

4.1.3. Antiviral

None of the antiviral drugs has been registered in CTRI for COVID-19 treatment. However, in the global clinical trials database, a large number of clinical trials have been registered to assess their effectiveness for the treatment of COVID-19. These trials include lopinavir/ritonavir, sofosbuvir/ledipasvir, favipiravir, umifenovir, triazavirin, balox-avir marboxil, azvudine, darunavir/cobicistat, sofosbuvir/daclatasvir, and emtricitabine/tenofovir as investigational drug. Remdesivir is a broad-spectrum antiviral drug, had been used for the treatment of Marburg and Ebola viruses. A recent study has found Remdesivir having potential efficacy against COVID-19.

4.1.4. Anticancer

Imatinib and Itolizumab two anticancer drugs have been registered in CTRI. The US National Library of Medicine clinical trial database (ClinicalTrials.gov) has registered a randomized, phase 2 clinical trial for investigating the effectiveness of imatinib mesylate as early treatment of COVID-19. Itolizumab is humanized IgG1 monoclonal antibody which selectively targets CD6. A phase 1 clinical trial to evaluate the safety, effectiveness and clinical activity of Itolizumab in subjects with moderate-to-severe uncontrolled asthma has been registered in ClinicalTrials.gov database.

4.1.5. Biologics

A total of nine trials have been registered in CTRI including four Convalescent plasma, three BCG vaccine, one suspension of heat-killed ( autoclaved) Mycobacterium w, and one of genetic mutation identification. Convalescent plasma (or immune plasma) is collected from COVID-19 infected and recovered individual (i.e., human antiSARS-CoV-2 plasma); transfused into infected patients as post-exposure prophylaxis. Several studies reported convalescent plasma as an effective preventive measure against COVID-19.

BCG vaccine has beneficial imprecise (off-target) effects on the immune system that defend against a wide range of other infections and are used routinely to treat bladder cancer. Several studies and trials are underway to generate evidence of use in COVID-19 prevention.

4.1.6. Ayurvedic

A total of seven studies have been registered for Ayurvedic drugs which include kashaya (Decoction) of Tinospora cordifolia, ZingiVir H, MyVir tablets, Dabur Chyawanprash, Shanshamani Vati or Sudarshana Ghanavati or Ashwagandha, Yashthimadhu tablet, Guduchi tablet. These Ayurvedic formulations are consisting of polyherbal drug which is used to strengthen the immune system and fight against infectious diseases. Enough clinical evidence is not available for the use of Ayurvedic drugs against COVID-19. However, Ministry of AYUSH published guidelines for safety precaution against COVID-19.

4.1.7. Homeopathic

A total of four trials have been registered of homeopathic medicine Arsenicum album-30 is a common prescription medicine for respiratory infection, flu-like illness in daily practice which believed to be effective against COVID-19.
One trial is of Cadamba, a medically potent plant having wide application in infectious as well as other disease and health condition. The use of Cadamba against COVID-19 is suspicious.

4.1.8. Diagnosis
The Real-Time Reverse Transcriptase (RT)-PCR Diagnostic tool detects the COVID-19 virus in upper and lower respiratory sampling. Now, CTRI registered a trial investigating the diagnostic tool such as a chest X-ray artificial intelligence module, CT-scan of thorax artificial intelligence module, in combination with voice sampling artificial intelligence module which may provide the better diagnosis. Another trial registered to assess decreases in the gag reflex while sampling for Covid-19 topical lignocaine.

4.1.9. Neutaceutical
A study has been registered in CTRI to investigate the immunity enhancing effect of SSV formulation (neutaceuticals) in COVID-19 patients.

4.2. Observational studies
A total of 17 observational (two retrospective and fifteen prospective) studies have been registered in CTRI. These COVID-19 studies have been designed for various objectives such as screening for symptoms, assessment of the knowledge, attitudes, and fear to evaluate the prophylactic efficacy of different regimens in asymptomatic health care workers, anxiety and depression during COVID-19, clinical characteristics and treatment outcome, hydroxychloroquine prophylaxis, radiographic findings and their temporal changes, knowledge status of the public.

The availability of new treatment modality against COVID-19 depends on the successful completion of the registered trial. Various factor affecting the completion of these trials such as COVID-19 itself a rapidly spreading infectious disease, large sample size, availability of research facilities/resources, and involvement of trained and skilled research staff, etc. may affect recruitment of subject and completion of trials resulting delay in trials result or outcomes.

However, the fast track approval of clinical trials, effective study design, making informed consent more “inform”, planning and scientific consideration over sample size, development of data safety monitoring board to supervise and ensure trial participants safety may enforce the successfullness of trials completion.

After China, the world is suffering from the COVID-19 outbreak. Till the availability of an impactful medical weapon against COVID-19, standard care, supportive care, symptomatic treatment, personal hygiene, social distancing, etc. are the considerable tools helpful in combat against COVID-19. Now, India is almost completing three stages lockdown of almost 54 days (25th March to 17th May 2020) followed by an announcement of the 4th stage lockdown on 12th May 2020 to break the chain of COVID-19 infection. Even though, the cases of COVID-19 are increasing vigorously in Maharashtra (on top). This pandemic situation affected health, lifestyle, job, and economy to a great extent.

5. Conclusion
The world is combating against the COVID-19 outbreak. The availability of new health intervention against COVID-19 needs the more scientific, and collaborative center of attention towards drug development and clinical trials for COVID-19.

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None.

7. Conflict of Interest
None.

8. Acknowledgement
Nil.

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