



## Case Report

# Early administration of Ivermectin, Azithromycin & Doxycycline along with I.V. Prednisolone in a case of COVID -19 disease may lead to early recovery?

Anisha Prasad<sup>1,\*</sup>

<sup>1</sup>Dept. of Pharmacology, North DMC Medical College & Hindu Rao Hospital, Delhi, India



## ARTICLE INFO

### Article history:

Received 16-09-2020

Accepted 24-09-2020

Available online 28-10-2020

### Keywords:

Dexamethasone

Azithromycin

Doxycycline

COVID 19

## ABSTRACT

A case of high-grade fever with chills for 5 days with shortness of breath since  $\frac{1}{2}$  an hour and mild abdominal discomfort is being presented in this report. A 62-year-old female doctor who was a known asthmatic for the last 20 years (on Seretide accuhaler S.O.S) presented with a history of heat exhaustion 7 days back, no history of nausea/vomiting/diarrhoea/sore throat or cough. Clinical examination revealed a fever of 101.8<sup>o</sup>F, SpO<sub>2</sub>- 94%, blood pressure of 100/70, and pulse rate of 100/min. Breath sounds were normal vesicular, heart sounds normal and no murmur present. In investigations, Real-time PCR for COVID-19 was done on 02/06/20 and came out to be positive. HRCT chest revealed few multifocal patchy areas of subpleural ground-glass haze in both the lungs with associated patchy fibrosis. She was treated with Azithromycin (500 mg OD x 5 days) and Ivermectin (6mg BD x 3 days /orally) along with Doxycycline 100 mg BD x 5 days and high flow oxygen. Prednisolone 50 mg/I.V. OD for 5 days followed by Dexamethasone (6mg P.O. and Monocef 1.5 gm x I.V. x BD x 5 days were added when SpO<sub>2</sub> of less than 90% was recorded and the patient complained of breathlessness and chest discomfort. A repeat test for COVID -19 was done on 20.06.20 which came out to be positive followed by a third test on 22.06.20 which came out negative. The patient recovered after 15 days of admission and was requested to get a repeat CT chest / Xray done after a month.

© 2020 Published by Innovative Publication. This is an open access article under the CC BY-NC license (<https://creativecommons.org/licenses/by-nc/4.0/>)

## 1. Case Report

A 65-year-old female doctor was admitted to the medicine ward of Aashirwad Hospital, Vivek Vihar, Delhi with high-grade fever, shortness of breath, and abdominal discomfort.

### 1.1. Investigations

Blood urea nitrogen was 19 mg/dl and serum creatinine were 0.89mg/dl. Investigations showed microcytic hypochromic anaemia with HB of 9.3gm/dl, and total leucocyte count of 12300 cells / $\mu$ L with neutrophils of 86% and Lymphocytopenia with 11% lymphocytes. C reactive protein was raised to 22.1 mg/L. Blood tests for salmonella typhi IgM and IgG were negative. Serum albumin 3.6 g/dl, serum lactate dehydrogenase 232 U/L, Prothrombin time

was 11.7 sec, D Dimer plasma was < 0.5, Procalcitonin was 0.025 ng/ml. The urine microscopy examination was normal and the urine culture sterile.

### 1.2. Diagnosis

Known case of Asthma with COVID -19 disease.

### 1.3. Treatment

The patient was treated with Azithromycin (500 mg OD x 5 days) and Ivermectin (6mg BD x 3 days /orally) along with Doxycycline (100 mg BD x 5 days) and high flow oxygen for the entire duration of admission. Prednisolone 50 mg/I.V. OD for 5 days followed by Dexamethasone 6mg OD orally, was given when the patient complaint of breathlessness and uneasiness in the chest in spite of daily administration of high flow oxygen and Seretide accuhaler,

\* Corresponding author.

E-mail address: [anisha.prasad@gmail.com](mailto:anisha.prasad@gmail.com) (A. Prasad).

also the pulse oximeter recorded oxygen saturation of less than 90%. Monocef 1.5 gm x I.V. x BD x 5days was added as the blood counts were found quite high (12300 cells/ $\mu$ L).

## 2. Discussion

In the present case scenario, the patient was put on a combination of Ivermectin and Doxycycline and Azithromycin as all these drugs have shown promising results in COVID -19 disease. Ivermectin decreases the viral load and the role of steroids is in improving the quality of life and decreasing mortality in serious COVID disease. In a study from Xi'an Jiaotong University, China conducted by Abu Taiub Mohammed Mohiuddin Chowdhury et al.<sup>1</sup> where a comparative study between Ivermectin- Doxycycline, and Hydroxychloroquine (HCQ)-Azithromycin therapy on COVID19 patients was done, it was found that the Ivermectin –Doxycycline combination therapy had better outcomes with a shorter recovery period. This combination provided relief in symptoms and patient adherence to therapy was better than the latter combination of HCQ and azithromycin. The limitation of this study was that no major co-morbidity was present in the patients. More studies are needed to evaluate the same. In another study which demonstrated a Comparison of Viral Clearance between Ivermectin with Doxycycline and Hydroxychloroquine with Azithromycin in COVID-19 Patients of Bangladesh,<sup>2</sup> it was found that Ivermectin and Doxycycline is a safe combination and found effective in shedding off viral load early into the disease in mild to moderate cases. Hydroxychloroquine (HCQ) and Azithromycin combination are safe but take a longer time to clear the viral load. Further studies are needed to reinforce the above observation.

In another study done by V. Gielen, S.L. Johnston, and M.R. Edwards,<sup>3</sup> Azithromycin was observed to have anti-viral activity in the bronchial epithelial cells. Results of the study showed that azithromycin possesses anti-rhinoviral activity in bronchial epithelial cells and also causes an increased production of interferon-stimulated genes during infection. In a study conducted by Gibson PG, Yang IA, Upham JW, et al<sup>4</sup> it was noted that patients who have persistent symptomatic asthma may suffer fewer exacerbations and a feeling of improved wellbeing when treated with Azithromycin for 48 weeks. Azithromycin can be used as adjuvant therapy in persistent asthma.

In a study which discusses the use of Corticosteroids in Coronavirus Disease: A review by Nicola Veronese et al.<sup>5</sup> the authors concluded that the available literature suggests that steroids should not be used routinely in COVID-19 disease, but results show that methylprednisolone could lower mortality rate in severe COVID disease(ARDS). In yet another study on the effect of corticosteroid treatment on patients with coronavirus infection: a systematic review

and meta-analysis conducted by Zhenwei Yang et al in Wuhan China,<sup>6</sup> the authors found that severe cases of COVID 19 could require corticosteroids which could even prolong hospital stay and increase mortality in certain patients along with an increased risk of bacterial infection and hypokalemia. Corticosteroids should therefore be administered under observation and with caution. Further, the authors observed that corticosteroids are not to be given in mild conditions and moderate cases only to suppress the symptoms, however further studies are required to conclude the same.

So, although the combination of Ivermectin and Doxycycline is safe, and decreases viral load, more studies are needed to further evaluate the benefits of this combination and it's adverse effects. Similarly, steroid administration does seem to decrease mortality but more literature is needed to support the same.

## 3. Source of Funding

None.

## 4. Conflict of Interest

None.

## References

1. Chowdhury ATMM, Shahbaz M, Karim MR, Islam J, Dan G, Shuixiang H. A comparative study on Ivermectin Doxycycline and Hydroxychloroquine Azithromycin therapy on COVID19 patients. Available from: <https://www.researchgate.net/publication/342159343>.
2. Rahman M, Iqbal SA, Islam MA, Niazd MK, Hussain T, Siddiquee TH. Comparison of Viral Clearance between Ivermectin with Doxycycline and Hydroxychloroquine with Azithromycin in COVID-19 Patients. *J Bangladesh Coll Physicians Surg.* 2020;38:5–9.
3. Gielen V, Johnston SL, Edwards MR. Azithromycin induces anti-viral responses in bronchial epithelial cells. *Eur Respir J.* 2010;36(3):646–54.
4. Gibson PG, Yang IA, Upham JW. Effect of azithromycin on asthma exacerbations and quality of life in adults with persistent uncontrolled asthma (AMAZES): a randomised, double-blind, placebo-controlled trial. *Lancet.* 2017;390:659–68.
5. Veronese N, Demurtas J, Yang L, Tonelli R, Barbagallo M, Lopalco P, et al. Use of Corticosteroids in Coronavirus Disease 2019 Pneumonia: A Systematic Review of the Literature. *Front Med (Lausanne).* 2020;7:170.
6. Yang J, Liu Y, Zhou Y, Zhao X, Zhao Q, Liu J, et al. The effect of corticosteroid treatment on patients with coronavirus infection: a systematic review and meta-analysis. *J Infect.* 2020;81(1):13–20.

## Author biography

Anisha Prasad Associate Professor

**Cite this article:** Prasad A. Early administration of Ivermectin, Azithromycin & Doxycycline along with I.V. Prednisolone in a case of COVID -19 disease may lead to early recovery?. *Int J Pharm Chem Anal* 2020;7(3):149-150.