

Retrospective observation of Oseltamivir use with very good negativity rate of samples in corona virus disease 2019 (covid 19) patients

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Abstract – At present whole of the world is fighting with corona pandemic. As per the symptoms of patients and disease severity, patients are referred to different types of treating centers with graded facilities. There is state wise difference in management depending on differences in available resources, active cases and mortality rate. Here we are going to highlight observation of adding Oseltamivir which increased oropharyngeal sample negativity manifold.

Key words- Covid, Corona, Oseltamivir, Virus, Pandemic

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I. Introduction

Covid 19 pandemic is caused by Severe Acute Respiratory syndrome Virus 2 (SARS-CoV-2) which is a positive-sense single-stranded RNA virus [1]. It encodes protein containing receptor binding domain that binds to the human angiotensin-converting enzyme and promotes uptakes of the virus into lung by endocytosis [2]. Upon entering the human cells, virus will take over the human cell's protein synthesis to synthesize more viral proteins. [3].

Majority of infected individuals are asymptomatic or have mild symptoms, most likely due to the activation of the body's antiviral defense mechanisms including natural killer cells and antiviral T cells, and induction of interferon [4-7]. Some infected individuals mostly with any co morbidity would encounter more severe disease characterized by significant respiratory symptoms leading to acute respiratory distress syndrome and even death. [8-9]

Corona positive patients who do not require Intensive care unit or ventilator support, patients with mild to moderate symptoms like fever, cough and malaise are being admitted at our center. Our Covid duty was from 03/06/2020 to 17/06/2020. Ongoing treatment was paracetamol for fever, expectorant cough syrup, warm saline gargles, steam inhalation, Vitamin C, multivitamin, azithromycin 500 mg OD for 5 days to all patients except pediatric patients.

Patients were being discharged only after one oropharyngeal swab through Reverse Transcriptase polymerase Chain Reaction (RTPCR) became negative. With above mentioned treatment, patients were showing improvement in symptoms and their sample became negative which was generally taken 48 hours after resolution of symptoms. But with time, sample negativity rate was declining (Table 1) even on repeated sampling. Hospital stay of patients was reaching up to 15 days. Then as per guidelines and instructions, Tab Oseltamivir 75 mg BD added to all the admitted patients along with above mentioned treatment on 10/06/2020 except pediatric patients.

Results of one oropharyngeal swab through Reverse Transcriptase polymerase Chain Reaction (RTPCR) of COVID 19 admitted patients were observed as before Oseltamivir and after Oseltamivir addition in treatment for above mentioned duration.

On completion of 5 day course on 14/06/2020, most of (>90%) patients became negative (Table 1) with no major side effects except gastritis in many patients for which proton pump inhibitor added to their treatment while sample negativity was 52% on 01/06/2020, 66% on 03/06, 21% on 06/06, 5% on 09/06, 18% on 12/06.

Date of test	Date of result	Total samples	Negative result	Sample Negativity
01/06/2020	03/06/2020	23	12	52%
03/06/2020	05/06/2020	27	18	66%
06&07/06/2020	08&09/06/2020	52	11	21%
09/06/2020	12/06/2020	34	2	5%
11&12/02/2020	14/06/2020	59	11	18%
14/06/2020	16/06/2020	37	34	91%

Note- Rescue drug Oseltamivir added to treatment on 10/06/2020 and completed on 14/06/2020.

Treatment-

1. There is an enzyme (neuraminidase) on the surface of viral cells that enables the copied viruses to be released from the infected cell. Oseltamivir blocks neuraminidase enzyme from working so that the virus copies can't be released. [10, 11] This means that the virus infection stops spreading around the body, so the infection will get better. Oseltamivir will only work on SARS-CoV-2 if it has the same neuraminidase enzyme that it can block.
2. Azithromycin is also reported to have antiviral activity by increasing the intracellular pH level to dismantle the viral replication process [12]. The second mechanism proposed is mediated by the amplification of interferon pathway of the host cell. It acts directly on bronchial epithelial cells to regulate their normal function by reducing mucus secretion [12].
3. Vitamin C can neutralize free radicals and assist to prevent cellular damage as a potent antioxidant agent. Moreover, vitamin C appears to be effective as an antiviral agent, especially against influenza viruses [13, 14].
4. Warm saline gargles and steam inhalation causing soothing effect so provide symptomatic relief.

II. Discussion

Covid 19 has become a worldwide emergency with no confirmed treatment and vaccine. Oseltamivir was added in view of milder side effects, less severe cases and guidelines. Sample negativity showed very good results as compared to previous samples but it further need to be evaluated as it was an observation where we found that our sample negativity increased many fold and Oseltamivir was the only new added drug to the treatment. -

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