Corona-Puzzle, Hope and Challenging Trends in Treatment-Original Research Article

N. Suresh¹, A. Karthikeyan²

MD, Assistant professor, Department of Medicine, Govt. Theni Medical College, Kochi - Madurai - Dhanushkodi Rd, Thenni Allinagaram, Tamil Nadu 625531, India

MD, Assistant professor, Department of Medicine, Govt. Theni Medical College, Kochi - Madurai - Dhanushkodi Rd, Thenni Allinagaram, Tamil Nadu 625531, India

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*Corresponding author: A. Karthikeyan

Abstract

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), initially named novel coronavirus or 2019-nCoV, is a single-stranded RNA virus. Covid has been designated as pandemic by WHO. Adaptability and mutations of the virus made the treatment modalities difficult and complications even worsen. Human to human transmission is more in crowded areas, social and mass gathering and making the virulence more and more. Patients suffering from symptoms of like fever, cough, dyspnoea, myalgia, headache, and sore throat were considered who attended the OPD of medicine and other departments. Severity of clinical symptoms can vary between individuals. 81% of cases were described as mild (i.e. non-pneumonia and mild pneumonia). 14% of cases were severe (i.e. dyspnea, respiratory frequency ≥30/min, blood oxygen saturation ≤93%, partial pressure of arterial oxygen to fraction of inspired oxygen ratio 50% within 24–48 h), and 5% were critical (i.e. respiratory failure, septic shock, and/or multiple organ dysfunction or failure). Treatment depends on the supportive and invasive methods. Preventive measures are better modalities and still holds good to decrease the spread of coronavirus which includes handwash using sanitizers, N95 masks and spacing.

Keywords: Corona, adults, paediatric treatment modalities.

INTRODUCTION

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), initially named novel coronavirus or 2019-nCoV, is a single-stranded RNA virus which forms one of the seven coronavirusae - 229E, OC43, NL63, HKU1, severe acute respiratory syndrome coronavirus (SARS-CoV), and Middle East respiratory syndrome coronavirus (MERS-CoV) [1]. Coronavirus is being transmitted from human to human which is really bothering the medical fraternity. A type of lower respiratory tract infection with the potential to cause severe and possibly fatal atypical novel coronavirus (2019-nCoV)-infected pneumonia (NCIP) in humans [2-4].

Prevalence and Mode of Transmission

Covid has been designated as pandemic by WHO [5]. The most affected countries across the globe is USA followed by Spain and Italy where the mortality rate is high accounting for more than 1.7 lakh deaths.SARS-CoV-2, compared with SARS-CoV both viruses share an amino acid sequence similarity of 76.5% and utilise angiotensin-converting enzyme 2 (ACE2) receptors as a mode of entry into healthy cells. Variations between the receptor-binding domain of the two brought about by mutations [7], genetic recombination [8], and natural selection enable SARS-CoV-2 to bind to the receptor more effectively [6].

Adaptability and mutations of the virus made the treatment modalities difficult and complications even worsen. Human to human transmission is more in crowded areas, social and mass gathering and making the virulence more and more.

Clinical Presentation

The World Health Organisation (WHO) estimates that the incubation time from infection to presentation of symptoms is 5.2 days, with a range of 1–14 days [9]. Based on computerised tomography (CT) findings and can be divided into early (0–4 days), progressive (5–8 days), peak (9–13 days), and absorption stages (≥14 days) [10]. Early stage disease consists of subpleural ground glass opacities (GGO) located in the lower lung lobes.
Severity of clinical symptoms can vary between individuals. 81% of cases were described as mild (i.e. non-pneumonia and mild pneumonia). 14% of cases were severe (i.e. dyspnea, respiratory frequency ≥30/min, blood oxygen saturation ≤93%, partial pressure of arterial oxygen to fraction of inspired oxygen ratio 50% within 24–48 h), and 5% were critical (i.e. respiratory failure, septic shock, and/or multiple organ dysfunction or failure) [11].

MATERIALS AND METHOD

Patients suffering from symptoms of like fever, cough, dyspnoea, myalgia, headache, and sore throat were considered who attended the OPD of medicine and other departments also in Theni medical college and these patients were sent for diagnostic tests. Few of them were admitted in the hospital. Lymphopenia was the most common laboratory finding among people with COVID-19, and is found in up to 83% of hospitalized patients [12, 13]. Lymphopenia, neutrophilia, elevated serum alanine aminotransferase, aspartate aminotransferase levels, elevated lactate dehydrogenase, high C-reactive protein (CRP), and high ferritin levels were observed with greater illness severity [12-15]. In the paediatric population, symptoms may include fever, nasal congestion, runny nose, expectoration, fatigue, cough, diarrhoea, and headache. As the disease progresses, signs of dyspnoea, cyanosis, in addition to systemic toxic symptoms, including malaise or restlessness, poor feeding, bad appetite and reduced activity may also present. In the most severe situations, these younger patients may progress into respiratory failure unresponsive to conventional oxygen therapy, septic shock, metabolic acidosis, irreversible bleeding, and coagulation dysfunction [16].

Mild uncomplicated illnesses include non-specific symptoms including fever, cough, sore throat, nasal congestion, headache, and muscle pain. Elderly and immunosuppressed individuals presented with atypical findings. Patients with high blood glucose levels and high blood pressure were vulnerable.

Prevention

Corona virus prevention can be done by the following remedies:
1. Case isolation in home
2. Voluntary home quarantine
3. Social distancing in elderly persons
4. Social distancing for the entire population
5. Closure of densely populated area
6. Closure of schools

Even after taking treatment one should maintain social distancing.

Management: Treatment depends on the supportive and invasive methods.

Mild: supportive and symptomatic therapy.

Intravenous (IV) Fluid Administration

Oxygen Therapy

- If patients present with SARI, hypoxemia or shock 5L/min to reach target SpO2 of at least 90% in non-pregnant adults (over 92% in pregnant patients).
- Children with severe breathing difficulties should have a target SpO2 of over 94%.
- Closely monitor patients with SARI in case of rapid respiratory failure or sepsis and intervene immediately. Clinicians should consider mechanical ventilation at this.

Corticosteroids

- Routinely administer corticosteroids in the treatment of viral pneumonia unless in a clinical trial or if steroids are indicated for another condition.
- Their use in studies on influenza have been found to exacerbate the infection and increase mortality rates [17].

Continuous positive airway pressure (CPAP) usage was seen more in the pandemic period as non-invasive procedure.

Endotracheal intubation: Preoxygenation for patients to combat the oxygen levels prior to infection
Invasive mechanical ventilation: Titration of positive end-expiratory pressure (PEEP) should be guided by the Fraction of Inspired Oxygen (FiO2) required to achieve a desired arterial oxygen saturation (SpO2).

Extracorporeal membrane oxygenation (ECMO)
Fluid Resuscitation and Vasopressors
In adults, fluid resuscitation should be administered as 250–500 mL crystalloid fluid boluses over 15–30 min followed by assessment for fluid overload after each bolus, norepinephrine is the drug of choice, which can be supplemented by epinephrine or vasopressin to maintain MAP targets. In children, fluid resuscitation should be administered as 10–20 mL/kg crystalloid fluid boluses over 30–60 min followed by assessment for fluid overload after each bolus.

Antiviral Drugs
Mainly remdesivir has been successfully used in the mild to moderate stages. Chloroquine was used in the initial mild stage of infection. Apart from the above modalities of treatment latest injectable like covaxin and coshield is being used.

CONCLUSION
Preventive measures are better modalities and still holds good to decrease the spread of coronavirus which includes handwash using sanitizers, N95 masks and spacing.

Interest of Conflict: Nil

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