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Case Report

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First COVID-19 Critical Case Hospitalized in Intensive Care Unit at Ibn Rochd University Hospital Casablanca, Morocco

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COVID-19 Dedicated ICU, University hospital of Casablanca, Morocco

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Abstract

SARS-CoV-2, the virus responsible for COVID-2019, is a new coronavirus discovered in the city of Wuhan in China in December 2019. It is responsible for an epidemic which epicenter was in China, Human-to-human transmission caused spread of the virus to Europe then to other countries, causing a pandemic. We report the first SARS-COV2 case confirmed hospitalized in intensive care in Morocco and describe the diagnostic procedure, clinical evolution and its management. This case highlights the importance of close coordination between clinicians and public health authorities at the national level.

Keywords: *2019-nCoV, intensive care, gravity, Respiratory support*

Introduction

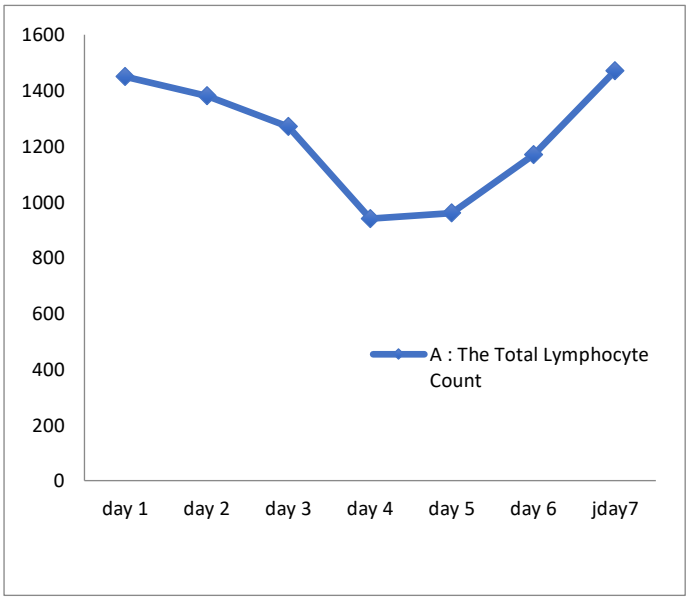
On December 31, 2019, the appearance of several cases of pneumonia of unknown origin in the province of Hubei in China led to the identification, on January 07, 2020, of a new coronavirus, called SARS-COV 2, which was officially named "Coronavirus Disease 2019" (COVID-19) by the World Health Organization (WHO) in February 12, 2020 [1]. This epidemic has spread at an unprecedented speed In China, then on a global scale, and continues to expand geographically and in number of infected and symptomatic people. On March 2, 1st patient of Moroccan nationality returning from Italy tested positive for the coronavirus. His condition is considered stable [2]. On March 5, a second case of coronavirus was registered in Morocco. It is again a 89-year-old Italian national of Moroccan origin who was also in critical condition requiring admission to intensive care [3].

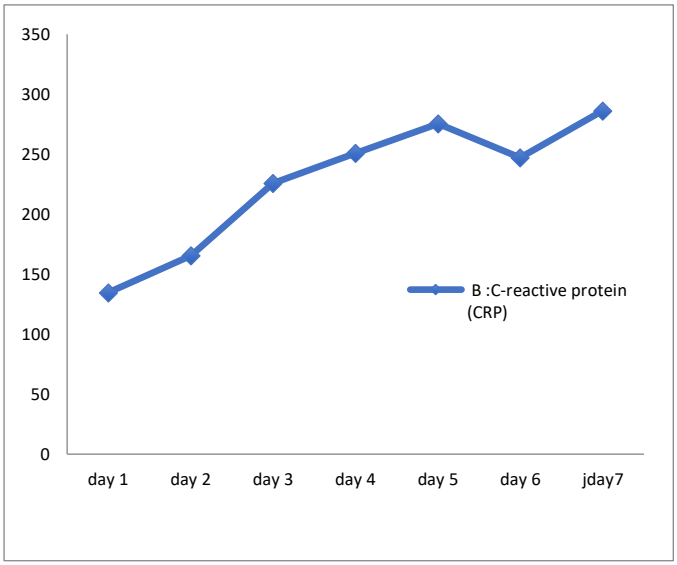
Observation

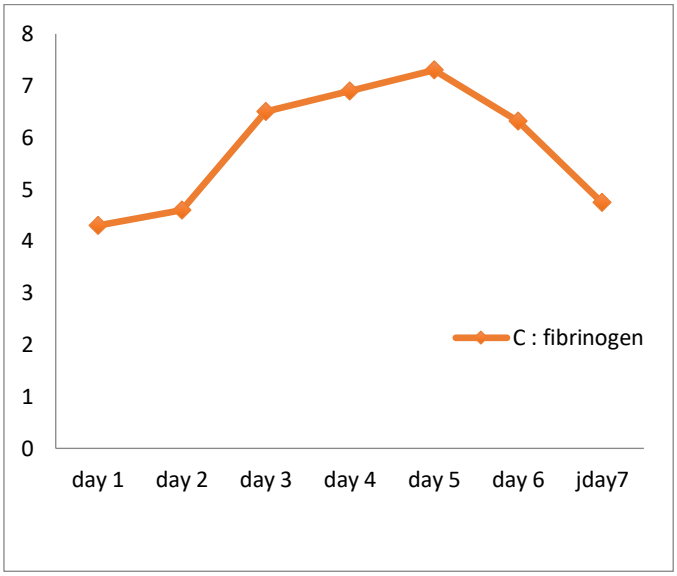
89-year-old known to be diabetic on insulin, hypertensive for 15 years on amlodipine and salicylic acid with the notion of several hospitalizations in Italy for exacerbations of her COPD and bronchiectasis. 8 days of his Arrival from Bologna in Italy on February 25, the patient presented a flu syndrome made of myalgia, asthenia with dry coughs, in a febrile context. The aggravation of the symptoms and the alert of the ministry of health question about the new epidemic of coronavirus in Italy and, in addition to its symptoms and recent trip, the case of contamination of the virus could be confirmed by a nasopharyngeal PCR found positive, after a member of his family contacted the number "Hello Yakada". His state of health had been deemed "critical" at the time of his diagnosis, requiring transfer to the Ibn Rochd Casablanca CHU medical intensive care unit. Once we were alerted to the first case of critical coronavirus disease, our medical emergency resuscitation service was emptied and reorganized to accommodate the first serious patient. On admission the patient was confused with GCS 13/15 without deficit signs, hemodynamically stable: HR = 100bmp, BP = 120 / 70mmhg with MAP at 80mmhg, respiratory : RR= 30c / min SpO2 70% at room air with signs of respiratory struggle (intercostal and suprasternal circulation), pleuro-pulmonary auscultation: presence of bilateral snoring groans, afebrile with CBG at 2.21g / l.Chest X-ray shows excavated bilateral alveolar nodules.Because of these symptoms the patient was put under assisted ventilation, an ABG was carried out objectifying a respiratory acidosis with hypoxemia PaO2 165mmhg for FiO2 = 1.0n the 1st day the blood count returned without any particularities as well as blood electrolytes, the hepatic and renal function were without abnormalities apart from a troponin1Hs 3 times normal, cardiac evaluation showed a hypertensive cardiomyopathy with an ejection fraction of left ventricle preserved. A respiratory worsening was noticed after 18H of his admission, the ABG showed hypoxemia with arterial oxygen pressure (PaO2) at 51 mm Hg and hypercarbia with arterial carbon dioxide pressure (PaCO2) at 50 mm Hg , with extension of the radiological

images, defining a severe respiratory distress syndrome following the Berlin criteria, our multidisciplinary medical staff named staff COVID-19 had opted for protective ventilation with a tidal volume at 6 ml /kg,RR at 20 and PEEP at 8 mmhg, associated with sedation, and a 48H of curarization . Due to a PaO2 / FiO2 ratio at 55.8 the indication of the ECMO was asked, but the evolution was so rapid on the hemodynamic level that it could not be achieved, at the same time a treatment based on hydroxichloroquine 200 mg for 2 doses per day which was stopped on the 4th day following prolongation of the QT segment on the ECG, given clinical worsening and a high CRP level (152 mg / l) treatment with moxifloxacin and imipenem was started. Finally, the patient benefited from an anti-thrombotic prophylaxis of Enoxaparin 4000UI subcutaneous per day.

Lymphopenia was noted around the 4th and 5th day, with a progressive rise in the inflammatory markers CRP. In addition, the hepatic function: ASAT (105 U per liter), ALAT (77 U per liter) and lactate dehydrogenase were high on the 5th day of hospitalization (465 IU per liter), also fibrinogen and d-dimer were elevated during hospitalization and ferritinemia at 1250mg / l (Figure 1).







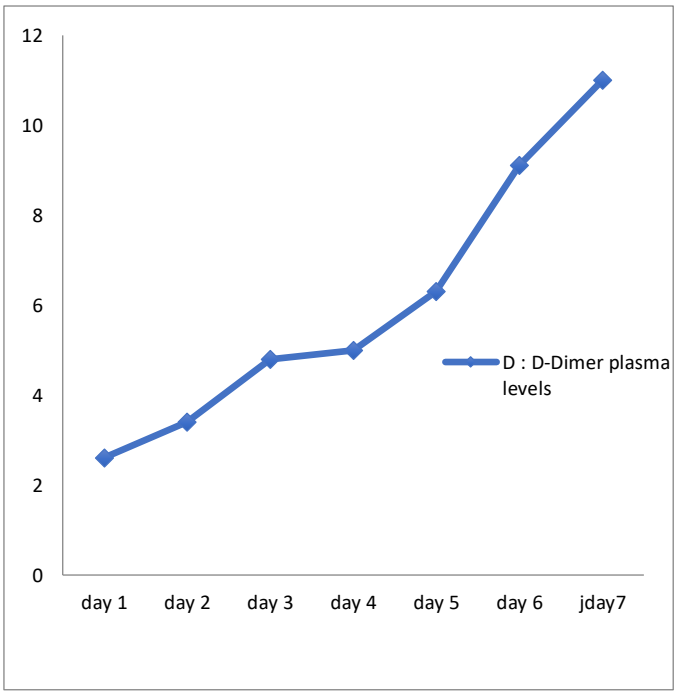


Figure 1: The evolution of (A) lymphocyte count, (B) C-reactive protein (CRP), (C) fibrinogen and (D) D: D-Dimer plasma levels with time in case.

On the 7th day of her hospitalization (15th day of illness), the patient worsened by the onset of crackles and rhonchi in the two pulmonary fields with deep worsening of hypoxemia, the ratio of which was 47mmhg. At 10 a.m. the patient presented a deterioration of the hemodynamic state with bradycardia and progressive hypotension, refractory to filling and to vasoactive amines. At 2:40 p.m. she presented with cardiac arrest. We performed cardiopulmonary resuscitation with external cardiac massage, administration of adrenaline and bicarbonates, without success. The death was declared on 03/13/2020.

Discussion

SARS-COV2 invades the respiratory mucosa and infects other cells, systematically causing a cytokine storm. Some patients may progress rapidly with ARDS, disseminated intravascular coagulation (CVID), septic shock, and ultimately organ failure [4]. Therefore, early identification and prompt treatment of critical cases is of crucial importance. Serious patients with COVID-19 should be treated in the ICU or even resuscitation units in the hospital.

About 5 to 15% of patients with COVID-19 require admission to the intensive care unit or even resuscitation units, especially for ventilatory support. Current recommendations suggest early intubation of COVID-19 for two reasons: moderate to severe acute respiratory distress syndrome (ARDS), following the Berlin criteria with moderate to severe hypoxemia PaO2 / FiO2 <200 mm Hg, thereby ensuring protection of healthcare teams against contamination [5].

Mechanical ventilation of COVID-19 patients is difficult due to the heterogeneity of pulmonary involvement which requires an individualized protective ventilation strategy to improve results. Camporota et al [6]. reported that many patients with COVID-19 pneumonia are initially characterized by preserved lung compliance despite severe hypoxemia, which is generally not the case in typical ARDS.

Consideration should probably be given to setting up a venous venous ECMO in the case of a severe form with PaO2 / FiO2 <80 mmHg and / or when mechanical ventilation becomes dangerous due to the increase in plateau pressure despite the optimization of ventilator settings and recourse to the prone position [7].

There are no specific antiviral drugs or vaccines for SARS-COV 2 infection at this time. It is therefore important to improve the host's immune response against this virus. All drug options are based on experience in treating SARS, MERS or any other influenza virus [8].

Hydroxychloroquine is an antimalarial derived from 4-aminoquinoline. It is an immunosuppressive drug for clinical use in the treatment of immune diseases such as rheumatoid arthritis and systemic lupus erythematosus [9]. It has been shown to be a potent inhibitor of SARS-COV2 infection due to its inhibitory effect on ACE2 [10].

However, attention should be paid to the potentially harmful effects of chloroquine seen in previous attempts to treat viral diseases. Currently, clinical trials to evaluate the efficacy and safety of chloroquine in the treatment of COVID-19 are underway [11].

Morocco has made a choice by deciding to administer this drug combined with azithromycin to all patients with Covid-19, as soon as they are positive [12].

Conclusion

Improved immune responses against viral infection, ventilatory support strategies, individual modulation of the immune system and inflammatory responses, as well as prophylaxis, treatment of organs complications and failures, and thromboembolic complications, are important measures for the recovery of critically ill patients with COVID-19.

To stop the epidemic spread of COVID-19 completely, a vaccine for SARS-COV2 is urgently needed. For a better understanding of this new virus, research must be carried out to obtain optimal strategies for the treatment of COVID-19.

Declaration of interest links

The authors state that they have no interest links.

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- Pr. R, EL HARRAR: Head of resuscitation service for surgical emergencies CHU Ibn Rochd, Casablanca.
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