



## Research Article

# Sars-Cov-2 in Patient with Multiple Myeloma Treated with Remdesivir: The First Case of Regression of Respiratory Failure and Pneumonia without Monoclonal Antibodies Therapy

Weimer LE<sup>1\*</sup>, Cattari G<sup>2</sup>, Fanales Belasio E<sup>3</sup>, Poddighe AF<sup>2</sup>, Sensi F<sup>2</sup>

<sup>1</sup>National Center for Global Health, Istituto Superiore di Sanità, Rome, Italy

<sup>2</sup>SSD Lungodegenza-ASSL Sassari-ATS Sardegna, Italy

<sup>3</sup>Department of Infectious Diseases, MIPI, Istituto Superiore di Sanità, Rome, Italy

\***Corresponding author:** Liliana Elena Weimer, National Center for Global Health, Istituto Superiore di Sanità, Rome, Italy

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## Background

The SARS-CoV-2 pandemic has already infected more than 98 million people worldwide and resulted in 2.1 million deaths, and cancer is a major risk factor for death associated with COVID-19 [1]. Multiple myeloma (MM) is a hematologic cancer involving plasma cells, primarily in the bone marrow [2]. In addition to specific cancer-related symptoms, they are an immunosuppression involving both the B-cell and T-cell compartments. Infections are common complications of the disease, and unfortunately remain a major cause of death [3]. In addition, corticosteroids, and especially dexamethasone, are used as treatment throughout the course of the disease, usually at high doses. This Multiple Myeloma therapy may increase the immunosuppression seen in patients with Multiple Myeloma, although low doses appear to improve mortality in hospitalized patients. Multiple Myeloma usually affects the elderly population, a more vulnerable group of patients because of immunosuppression along with other comorbidities. For all these reasons, Multiple Myeloma could theoretically represent an elevated risk factor for Sars-Cov-2 positive patients [4]. We report a case of a patient with Multiple Myeloma with persistent respiratory failure from Sars-Cov-2 treated with REMDESIVIR.

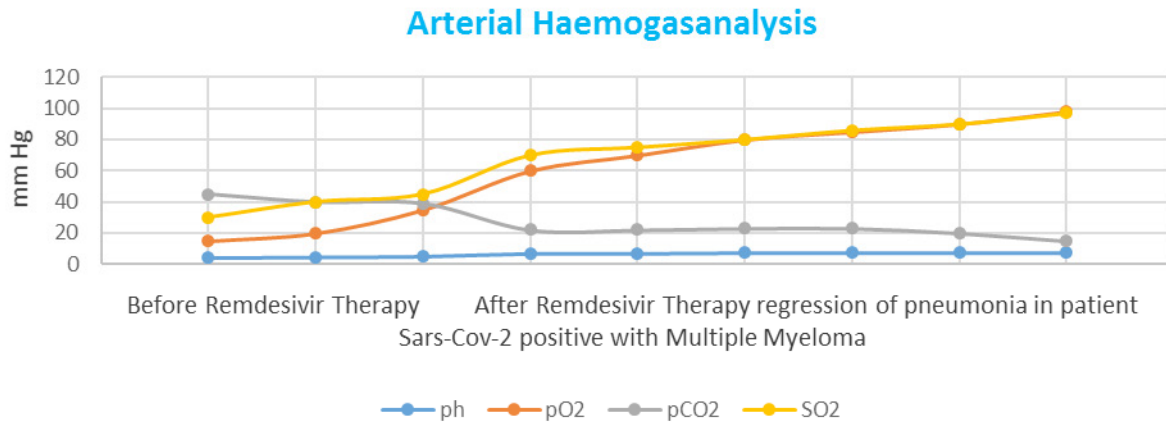
## Description

Our Italian patient 75-year-old, woman, developed chest tightness with fever and cough on 28 October 2020. In the Hospital

she was admitted immediately after Computed Tomography (CT) imaging of her chest showed multiple ground-glass opacities located in both subpleural spaces. Nasopharyngeal swab specimens were collected to detect severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) nucleic acid. The swab specimens were tested by real-time reverse transcriptase–polymerase chain reaction; a positive result was received 2 days later. Our patient was diagnosed with Sars-Cov-2, and was given 100-mg REMDESIVIR (VeKlury) tablets orally, 3 times daily, for antiviral treatment (from 5/11 to 9/11) and received 400 mg of moxifloxacin IV daily for 3 days.

The patient had a history of symptomatic Multiple Myeloma (immunoglobulin G $\lambda$  [IgG $\lambda$ ], IgIII $\lambda$ ), which was diagnosed on 2 February 2013 with bone marrow infiltration, cervical, dorsal, lumbar, pelvis and femurs localizations (contraindications to load and walking), previous mastectomy for mammary cancer, arterial hypertension. At that time, a bone marrow aspirate showed 16.7% clonal plasma cells, and multiple osteolytic bone lesions obvious in frontal and temporal bone on radiography. Her kidney biopsy confirmed amyloidosis; laboratory testing also showed proteinuria. The patient received 2 cycles of induction chemotherapy consisting of Lenalidomide and Dexamethasone, and Bortezomib - Dexamethasone and her symptoms completely disappeared. After that, he refused bortezomib-based treatment and only received thalidomide for maintenance (Figure 1). On December 12, 2020, our patient was negative and she had after Computed Tomography (CT) imaging of her chest a complete resolution of bilateral areas of altered density a ground glass after treatment with REMDESIVIR .

**Figure 1:** Arterial Haemogasanalysis.



**Note:** This table show abnormal Arterial Haemogasanalysis before Antiviral Therapy and normal pH,pO<sub>2</sub>,pCO<sub>2</sub>,SO<sub>2</sub> after Remdesivir Therapy with regression of Pneumonia.

## Discussion

Sars-Cov-2 infection affected patients globally, with a high incidence in Europe and the Americas. The disease has affected patients of all age groups; however, heterogeneity in the outcome of Sars-Cov-2 infection associated with comorbidities, racial differences, and individual characteristics such as smoking has been observed of note, the presence of comorbidities has been extensively studied to identify patients at higher risk of infection and those with worse outcomes. In this regard, our current study focuses on a single type of cancer, Multiple Myeloma, to understand both the impact and outcome of patients when they develop Sars-Cov-2 infection. Because patients with Multiple Myeloma have characteristic immunosuppression, it is of great interest to understand the impact of new antiviral agents. The immunosuppressive effects of high-dose therapy with autologous transplantation, as well as novel targeted therapies [5].

Here, we report a patient responding to Remdesivir for regression of pneumonia caused by Sars-Cov-2 without Tocilizumab, despite Multiple Myeloma. Patients with active Multiple Myeloma present severe impairment to humoral immunity, due to disability of normal immunoglobulin production, with a concomitant secretion of monoclonal component. In addition, it was evidenced dysfunctional cellular and reduction of innate immunity, these damages promote failure of immunosurveillance mechanisms becoming patients particularly susceptible to viral and bacterial infections. The vulnerability of this case may be explained through a Spanish multicenter case-series paper. It was observed in 167 hospitalized patients with Multiple Myeloma and

Sars-Cov-2 50% higher mortality rate than in patient non cancer patients with Sars-Cov-2, 34% and 23%, respectively. Moreover, they were demonstrated that uncontrolled Multiple Myeloma and renal insufficiency were independent factor of death in hospitalized patients with Sars-Cov-2 [6]. This case presented poor prognostic factor: age > 65 years and progressive disease.

The possibility of a infection and/or reactivation of Sars-Cov-2 could be consider for immunosuppressive patients with Hematologic malignancies mainly for those that need to resume anti-cancer treatment.

## Conclusion

We need prospective studies of treatment options and additional patient characteristics to further understand the variables associated with Sars-Cov-2 death in patients with Multiple Myeloma.

The high mortality observed in patients with Multiple Myeloma highlights the critical importance of measures to prevent Sars-Cov-2 contraction, such as social detachment and mask use, in patients with Multiple Myeloma.

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