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CORRESPONDENCE

SARS-CoV-2 infection in beta thalassemia: Preliminary data from the Italian experience

To the Editor:

Patients with pre-existent chronic morbidities are likely to be more severely affected by SARS-Cov2 infection, but no data are available regarding Thalassemic Syndromes (TS). Note, TS and hemoglobin variants represent, according to WHO, one of the most frequent causes of anemia, affecting more than 7% of the world population.[1] Thalassemic Syndromes are classified in either transfusion-dependent thalassemia (TDT) or non-transfusion-dependent thalassemia (NTDT). Infectious complications, mainly from bacteria, constitute a common cause of mortality and morbidity in TS. Stress erythropoiesis, iron overload, splenectomy and adrenal insufficiency among others may contribute to increase susceptibility to infection.[2]

To verify the impact of SARS-CoV-2 infection on TS, we set-up a specific survey by electronic Case Report Form (eCRF).[3] Inclusion criteria require at least 15 days of follow-up from either the onset of symptoms or SARS-CoV2 positivity. The survey was approved by Ethics Committee and eCRF was shared with the Centers of Italian Hemoglobinopathies Network. The "Società Italiana Talassemie ed Emoglobinopatie" (SITE), has estimated the presence in Italy of approximately 5000 TDT and 1900 NTDT patients.[3]

As of 10 April 2020, 11 cases of TS and COVID-19 have been collected (see supplementary information). All the reported patients are in Northern Italy, where the rate of infection is higher, reflecting the national epidemiology.

The mean age is 44 ± 11 years (range 31-61 years) and 55% (6/11) are females. Ten patients are TDT, and one is NTDT. All the patients have thalassemia associated comorbidities, eight are splenectomized, and one patient (#9 in the supplementary table) has pulmonary hypertension treated with sildenafil. The likely source of infection has been detected in 55% (6/11) of cases: two had contacts with COVID-19 positive subjects, and four had occupational exposure (three are nurses working in hospital or assisted living facilities).

Three patients were asymptomatic. One patient (#3 in supplementary information) was admitted for high fever and bone marrow hypoplasia, lymphopenia, and agranulocytosis (on treatment with deferiprone) and tested positive at the third swab. Six out of 11 were hospitalized, but no one required mechanical ventilation. The patient with more severe symptoms who required more intensive ventilation support with continuous positive airway pressure (CPAP) has a history of diffuse large B-cell lymphoma, treated with chemotherapy in the previous year, currently in complete remission. Of the six people admitted to the hospital, only three received supposedly specific treatment for COVID-19: one hydroxychloroquine (HCQ), one HCQ plus ritonavir/darunavir, and one HCQ plus anakinra. Patient #3 did not receive HCQ due to concomitant therapy with amiodarone and an increased risk of *life-threatening* arrhythmia. The clinical course ranged from 10 to 29 days. Ten patients have clinically recovered and are on a daily remote phone call follow-up. Splenectomy which was present in 8/11 patients did not seem to affect the clinical course. Of note, except for the patient with myelosuppression, no increase in blood requirement was observed. When luspatercept treatment was halted in the NTDT patient, hemoglobin fell from 110 to 82 g/L, a value similar to the pre-luspatercept period. Neither death nor severe SARS or signs of cytokines storm were observed in these 11 subjects, which may be surprising, taking into account the mean age and the presence of severe comorbidities.

Our data, although preliminary, do not indicate increased severity of COVID-19 in TS. A larger number of cases needs to be collected to define the impact of this new infection and its outcome in these fragile patients.

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CONFLICT OF INTEREST

The authors declare no competing financial interests.

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REFERENCES

1. Modell B. Global epidemiology of haemoglobin disorders and derived service indicators. *Bull World Health Organ*. 2008;86(6):480-487.
2. Taher AT, Weatherall DJ, Cappellini MD. Thalassaemia. *Lancet*. 2018;391(10116):155-167.
3. http://www.site-italia.org/2020/covid-19.php. SITE communication. Accessed April 1, 2020.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.