Anemia hemolítica autoinmune después de la infección por Covid 19

Autoimmune Haemolytic Anaemia After Covid 19 Infection

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ABSTRACT

Since its emergence in Wuhan province in late 2019, SARS-CoV-2 infection has affected more than 520 million people and caused the death of more than 6.2 million individuals. Despite rare, several haematological disorders have been observed and associated with SARS-CoV-2 infection, in particular, autoimmune haemolytic anaemia (AIHA).

We present the case of a 71-year-old man with recent SARS-CoV-2 infection, presenting with 5 weeks evolution of asthenia and loss of 10% of body weight.

From the initial study, normochromic normocytic anaemia stands out with haptoglobin consumption. Direct Coombs test was positive, with positive direct antiglobulin test for IgG4.

The patient was admitted and started corticosteroids therapy with prednisolone 1 mg / kg. Given that the extended etiologic study was negative, covid 19 was assumed to be the trigger of the current clinical picture.

During hospitalization, the patient presented a favourable evolution with recovery of haemoglobin value and absence of haemolysis.

Keywords: Autoimmune Haemolytic Anaemia, SARS-CoV-2 Infection, Covid 19 Infection.

RESUMEN

Desde su aparición en la provincia de Wuhan a finales de 2019, la infección por SARS-CoV-2 ha afectado a más de 520 millones de personas y ha causado la muerte de más de 6,2 millones de individuos. A pesar de ser poco frecuentes, se han observado varios trastornos hematológicos asociados a la infección por SARS-CoV-2, en particular la anemia hemolítica autoinmune (AIHA).

Presentamos el caso de un varón de 71 años con infección reciente por SARS-CoV-2, que presenta astenia de 5 semanas de evolución y pérdida del 10% del peso corporal.

Del estudio inicial destaca anemia normocítica normocrómica con consumo de haptoglobina. El test de Coombs directo fue positivo, con antiglobulina directa positiva para IgG4.

El paciente fue ingresado y se inició tratamiento con corticosteroides con prednisolona 1 mg / kg. Dado que el estudio etiológico ampliado fue negativo, se asumió que el covid 19 era el desencadenante del cuadro clínico actual.

Durante la hospitalización, el paciente presentó una evolución favorable con recuperación del valor de hemoglobina y ausencia de hemólisis.

Palabras clave: Anemia hemolítica autoinmune, Infección SARS-CoV-2, Infección Covid 19.

INTRODUCTION

Since its emergence in Wuhan province in late 2019, SARS-CoV-2 infection has affected more than 520 million people and caused the death of more than 6.2 million individuals (WHO data, 23rd May 2022).[1]

About 75% of affected people have asymptomatic infections.[2,3] The most common manifestation is a flu-like syndrome that may progress patients to bilateral interstitial pneumonia, severe ARDS and multiorgan dysfunction.[2,3]

However rare, several haematological disorders have been observed and associated with SARS-CoV-2 infection, ranging from pro-thrombotic states[4,5] to autoimmune haemolytic anaemia (AIHA).[6,7,8] Despite known, the association with AIHA remain exceedingly rare and was only described in some case reports and series of cases.[6,7,8]

AIHA is characterized by the destruction of red blood cells by autoantibodies, but the underlying mechanism remains to be elucidated. Angileri *et al*, proposed that molecular mimicry between the erythrocyte membrane protein Ankyrin 1 (ANK-1) and the viral protein spike could be the basis of the haemolytic phenomenon observed in some patients.[9] ANK-1 is essential in red blood cell differentiation and function. It shares a immunogenic antigen epitope with the viral surface protein. Thus, this mimicry could generate cross reaction of antibodies elicited against the spike protein.

CASE REPORT

We present the case of a 71-year-old man with a history of hypertension, prostate carcinoma, chronic kidney disease, stage 3B and recent SARS-CoV-2 infection, who went to the emergency department with a clinical picture of asthenia, anorexia, loss of 10% of body weight and intolerance to efforts with progressive worsening with about 5 weeks of evolution (coincidence onset with SARS-CoV-2 infection).

On objective examination, the patient was hypotensive with blood pressure of 90 / 50mmHg, heart rate of 75bpm, with 100% peripheric saturation. He had no changes on cardiopulmonary auscultation, no adenomegalies and no palpable masses or organomegalies in the abdominal evaluation.

On admission, he had a haemoglobin value of 6.7mg/dL, leucocytosis with 15.91x10^3 Leucocytes, lactate dehydrogenase (LDH) 285u/L, elevated total bilirubin of 1.96mg/L with direct bilirubin 0.5mg / L, consumption of haptoglobin <10mg / dL, elevated ferritin of 931 u/L, normal levels of iron and transferrin saturation. His peripheral blood

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smear highlighted the presence of numerous stomatocytes and polychromatophilia. The direct Coombs test was positive, with an IgG4 positive direct antiglobulin test. An abdominal ultrasound was performed, which revealed only a 14.7 cm homogeneous splenomegaly, with no other changes.

The patient was admitted and started on corticosteroid therapy with prednisolone 1 mg/kg/day. Secondary causes of AIHA were ruled out, namely autoimmune, infectious and neoplastic. Results of viral serologies (including chickenpox, herpes virus 1 and 2, herpes Zoster, HIV, HBV and HCV, CMV, EBV, Leptospira, Listeria, Coxiella, Brucella, Borrelia, mycoplasma, Rubeola and Toxoplasma) were negative. The patient had normal C3 and C4 levels as well as an immunological study with normal ANA and ANCA, immunoglobulins with a slight elevation of IgM (221.0) with normal IgG and IgA. Electrophoresis, serum immunofixation and urinary light chains were normal. Negative IGRA assay. A cervicothoracoabdominopelvic CT scan was performed, which revealed no changes apart the homogeneous splenomegaly already observed on ultrasound.

Thus, given the extensive negative etiological study, the known association with SARS-CoV-2 infection and development of AIHA within the timeframe of the cytokine storm we assumed the recent Covid-19 to be the trigger to this manifestation.

During hospitalization, the patient presented a favourable evolution, with gradual and progressive recovery of haemoglobin values with normalization of lactate dehydrogenase and haptoglobin values.

The patient was discharged oriented to the external consultation, remaining without signs of haemolysis and maintaining normal haemoglobin levels.

CONCLUSIONS

The main manifestation of Covid-19 remains respiratory failure and acute distress syndrome. However, extrapulmonary manifestations, despite rare, have been reported. AIHA remains an exceedingly rare complication in patients infected with SARS-CoV-2, with haemolytic manifestations appearing between 4 to 13 days after Covid 19 initial symptoms. In this case, despite being diagnosed a few weeks later, the patient manifested asthenia in the same week he had the first symptoms of Covid 19. Therefore, temporal events and exclusion of other causes supports the link between SARS-CoV-2 infection and AIHA.

If the underlying mechanism is a cross reaction of antibodies directed to viral protein Spike, against ANK-1 protein remains to be further elucidated.

CONFLICT OF INTEREST
The authors declare that there is no conflict of interest in this work.

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This research had no funding sources.

ETHICAL ASPECTS
All participants submitted a consent form to be included in this study.

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