Therapeutic approach to Sars-COV-2 in early treatment of patient not-hospitalized: a case report.

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Case Report

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Abstract

Background: Sars-CoV-2 induces a massive inflammatory response mediated by macrophages, activated thanks to IFN γ secreted by T lymphocytes. Viral Spanish influenza has been reported that it could have the similar inflammatory mechanism that we can observe in COVID-19 patients¹⁶). We tested this theory on a 55-year-old male patient, Sars-COV-2 positive.

Case presentation: We treated our patient using clinical data and therapeutic approaches from a team of Chinese researchers, established during the beginning of the epidemic in December 2019. The new member of the human coronavirus, officially called SARS - CoV - 2 (severe acute respiratory syndrome coronavirus 2) by the International Committee on Taxonomy of Viruses (ICTV) is a new RNA virus strain that has not been previously identified in humans (1). This patient showed a Sars Cov-2 infection and was treated early with glucocorticoids. The patient immediately showed a regression of fever and an improvement of symptoms.

Conclusions: We hypothesize that the initial stages of the infection can be treated with glucocorticoid therapy.

Background

SARS-Cov2 induce a middle infection into the young children but the mortality is more high in to the adult population: this way of infection it isn't a classic way because the child doesn't have a strong immune response, therefore this atypical response. In patients with severe disease, viral clearance was delayed, with a persistent elevation of pro-inflammatory cytokines and associated multiorgan damage despite antiviral therapy². Furthermore, a lower serum IgG2 level appeared to be associated with a mild severity of disease, especially in pregnant patients. Severe disease and lung pathology were associated with the deposition of immune complexes. Another important aspect in the pathogenesis of SARS-CoV-2 is the cytokine storm^{6,13}. SARS Cov-2 have some similarity in the pathogenesis with other class of viruses that can stimulate immune response regulated by cytokine IL-6, IL-1, IL-8^{8,10,12,13}. In the early hours of a viral infection, the cytokines produced by cells infected or coming into contact with viral products are vital in promoting of the innate immune response¹⁸ and of infection^{14,15}. On the basis of the similar pathogenetic pathway in the MASs (macrophage activation syndromes)¹³ where we can find the presence of an altered immune response making by an higher expression of inflammatory cytokine (IL-6, IL-1, IL-18), responsible to generate a respiratory distress, that we can find also in other pathology with altered immune response i.e. rheumatoid arthritis In literature we can find many links between virus and altered immune response, i.e. EBV and sHLH¹². On this wake we can speculate that Covid-19 positive patient with high fever and not responsive at paracetamol and with dyspnoea at the fourth day of manifestation of symptoms could start therapy 3x3x3 with cortisone. That patient showed an improvement in ten days from the beginning of the therapy. In literature we note that treatment of sHLH from EBV in **early step** making an improvement of the treated patient¹².

Case Presentation

Therapy approach

We based our treatment, on clinical action of Sars COV-2^{8,16}, and for this patient M.A. male of 53 years old with an history of ipertension and ipercholesterolemia, authorized us treating this virus¹⁶, trying to intervene on cytokine storm. Our patient showed high fever 39,5°C, general exhaustion with persistent cough; in a first clinical approach the patient was treated with paracetamol 1000mg each 12 hours and supracef in pills one each day for 4 days; after 4 days of treatment we observate a costant fever at 39 °C and increase of cough and an initial dispnea, with an increasing general exhaustion. We recomend sampling with swab on nose mucosa for Sars COV-2, as it is recomanded by guidelines, the swab was positive for Sars COV-2. The patient began immediately a therapy with betametasone (bentelan) 1mg x 3 times a day for 3 days, then 2 times a day for 3 days and 1 time a day for 3 days and we somministrare, althought claritromycin 500mg 1 pills a day for 7 days for reducing possibility of over infection; we suggest also a correct disinfection of oral mucosa with gargling with peroxid 3% 10 vol. each 12 hours. We retain to somministrare also some integration with complex of vitamine and mineral salts. After three days of this treatment the patient improved with reducing all symptmos, cough, Exhaustion and fever, that reducing from 39,5 °C to 37°C. At the day five the patient didn't show fever anymore and cough; we notice a persistance of general exhaustion. At day seven the patient showed slight hoarseness treated with bronchodilator mixed low level of cortisone in spray solution; after 15 days the patients repeat swab was negative for Sars COV-2.

Discussion And Conclusions

Our Hypothesis is that Sars-COV-2 has a capacity to stimulate a cytokine storm^{8,16}, guided us to cure Patient M.A. with short therapy with cortisone; it's obvious that this kind of treatment could be applied just in the onset of the pathology after first step of therapy with paracetamol was negative. This therapy could be usefull in the first steps because we try to break out the initial increasing of the immune response infact we try to intervene on macrophages¹³ and monocyte response at the virus. As other studies show the glucocorticoid regulate the central cytokine release and regulate in negative sense the release of IL-6 and macrophages¹⁸. The Interleukine have the principal role in the cytokine storm development and blocking it we can solve in early time the increasing of a great part of the symptoms shows in this Sars COV-2 infection; this therapy could be using to control viruses symptoms and it avoid the ICU admission of the patient.

Declarations

Funding: No funding was received for this study.

Conflict of Interest declaration.

Conflict of Interest: Del Prete Salvatore; Marasco Daniela; Rosalaura Sabetta; Caruso Armone Arturo; Guido Consolmagno and Del Prete Antonio, declare that they have no conflict of interest.

Compliance with Ethical Standards:

This study did not receive funding.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

The patient consented to participate and have their clinical data published as a case report.

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