Multidisciplinary Respiratory Medicine 2021; volume 16:748

pagepress

Letter to the Editor

OPEN ACCESS

Preventive home therapy for symptomatic patients affected by COVID-19 and followed by teleconsultations

Gennaro D'Amato,[1] Luca Acanfora,[2] Lucrezia Delli Paoli,[3] Maria D'Amato[4]

[1]Division of Respiratory and Allergic Diseases, Department of Chest Diseases, High Specialty "A. Cardarelli" Hospital, Naples, and Medical School of Specialization in Respiratory Diseases, Federico II University of Naples
[2]Managing Director of the Covid-19 nasopharyngeal testing project, for the cooperation agreement between High Specialization in Infectious Diseases "Cotugno Hospital" and "Sovereign Military of Malta" in Naples, Federico II University of Naples
[3]Department of Cardiology and Cardiac Surgery, Second University of Naples "L. Vanvitelli", "San Michele" High Specialty Hospital, Maddaloni (CE)
[4]First Division of Pneumology, "V. Monaldi" High Specialty Hospital and Federico II University of Naples, Italy

ABSTRACT

In this paper we present our experience on the treatment at home of Covid+ symptomatic patients. One hundred and eighty-two subjects (111 men and 71 women) aged from 32 to 71 years have been consecutively followed at home in telemedicine from 1st September to 24th December 2020. We were informed almost twice daily in morning and evening about body temperature, symptoms (cough, shortness of breath or difficulty breathing, fatigue, muscle of body aches, headache, loss of taste or smell, sore throat, congestion or runny nose, nausea and vomiting, diarrhea), oxygen saturation measured by digital pulse oximetry and blood pressure. Our protocol of treatment was based on early use of prednisone (25 mg in the morning and 12.5 mg in the afternoon) and low molecular weight heparin (4000 UI one or two times daily) initiated just after the positivity of molecular nasopharyngeal test (about 3-4 days as mean time after initiation of symptomatology and not after 7-8 days as suggested by other protocols) and oxygen therapy when necessary. Antibiotics such as azithromycin for six days was added. It is always recommended to associate lansoprazole 30 mg to prevent gastric hemorrhages and potassium and magnesium supplements. This treatment scheme was able to reduce the risk of hospitalization as only 4 patients needed to be admitted to the Hospital, and only two in subintensive department. After negativeness of molecular nasopharyngeal test, patients were invited for a thoracic computerized tomography and laboratory evaluation of d-dimer and other data of inflammation to show eventual lung interstitial involvement characteristic of COVID-19.

Key words: COVID-19; SARS-CoV-2; teleconsultations; glucocorticoids in the therapy of COVID-19; LMWH in the COVID-19 therapy; home therapy of COVID-19; treatment of symptomatic patients.

Correspondence: Prof. Gennaro D'Amato, Division of Respiratory and Allergic Diseases, High Speciality Hospital "A. Cardarelli", Naples; Medical School and School of Specialization in Respiratory Diseases of University of Naples "Federico II", Rione Sirignano 10, 80121 Napoli, Italy. E-mail: gdamatomail@gmail.com

Contributions: All the authors made a substantive intellectual contribution, read and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

Conflict of interest: The authors declare no conflict of interest for this manuscript. GDA is a member of the Editorial Board of *Multidisciplinary Respiratory Medicine.*

Funding: This study has not received any specific grant by anyone.

Introduction

COVID-19 has been declared a pandemic by the WHO [1]. Following the outbreak of the disease in China [2], Italy was the first European country to be heavily involved in the pandemic [3-5]. Initially, from March to June there was an exponential increase in cases prevalently in the Northern part of the country [3-5] reaching incidence and mortality rates among the highest in the world [3-6].

Many factors explain differences from other countries, including different application of detection tests, a larger elderly population, a different prevention policy but probably also for the role of atmospheric air pollution [7] and relative humidity rate. Deepening these correlations would be desirable to set forecasting models on the spread of the infection. Just after a reduction in July and August there has been a second increase of COVID-19 involving also the Southern part of Italy.

In Italy, the possibility of performing autopsies or *post-mortem* diagnostic studies on confirmed COVID-19 cases was intensively debated [2-5]; in autopsies the involvement of endotelial, prevalently of microvascular system has been identified for the recruitment of multiple cytokine-activated inflammatory cell lineages [8].

Other possibilities that deserve further experimental evidence include an exaggerated antibody-mediated response with complement activation and/or a hypothetical cytopathic effect of the virus [9]. The latter could explain the microvascular damage leading to disseminated intravascular coagulation (manifested as thrombosis, thrombocytopenia, and gangrene of extremities), anti-phospholipid syndrome, and mimicry of vasculitis. On the basis of these considerations we have proposed telemedicine [10-12] as treatment of COVID-19 patients (Table 1), the association of low molecular weight heparin (LMWE) (4000 uI or 6000 each day on the basis of weight and corticosteroid (prednisone 25 mg in the morning and 12,5 in the evening: dosage not immunodepressive but with anti-inflammatory activity) to reduce the cytokine storm) [13,14]. Usually, we add azithromycin for its anti-inflammatory properties [15], one tablet daily for six days. With this approach we have treated from 1st September to 24th December 2020, consecutively followed at home in telemedicine, 182 subjects (111 men and 71 women), aged from 32 to 71 years, all in good health and only 15 men and 10 women with bronchial asthma in treatment with associations of bronchodilators and corticosteroids. We were informed almost two times daily in the morning and evening about body temperature, symptoms (cough, shortness of breath or difficulty breathing, fatigue, muscle of body aches, headache, loss of taste or smell, sore throat, congestion or runny nose, nausea and vomiting, diarrhea) and oxygen saturation measured by digital pulse oximetry. Our protocol of treatment was based on use of prednisone and low molecular weight heparin to reduce risks of thromboembolism induced by SARS-CoV-2 and initiated just after positivity of molecular test (about 3-4 days on the average after initiation of symptoms, not after 7-8 days as suggested by other protocols) and oxygen when necessary. We have used prednisone (25 mg in the morning and 12.5 in the evening) starting just in concomitance with the positivity of the molecular test and about 3-4 days after the start of symptoms. Antibiotics, such as azithromycin for six days were added [15]. Only 4 patients needed to go to hospital, and only two in intensive department. In diabetics we suggested to treat hyperglycemia by regulating the dosage of antidiabetic treatment and in case of hypertension to increase the dosage of anti-hypertensive drugs. This treatment was able to reduce the risk of hospitalization. After the negativeness of molecular nasopharyngeal test, patients were invited for a thoracic computerized tomography and laboratory evaluation of d-dimer (following cut-off for the continuous of treatment with LMWE) and other data of inflammation to show eventual pulmonary interstitial involvement.

Abbreviations

COVID-19: Coronavirus disease 19;
ARDS: adult respiratory distress syndrome;
PEE: personal protective equipment;
CPAP: continuous positive airway pressure;
LMWH: low molecular weight heparin;
NIV: noninvasive ventilation;
ICU: intensive care unit;
ED: emergency department;
TAC: tomography axial computerized.

Table 1. Suggested protocol of preventive home therapy for symptomatic patients affected by COVID-19 and followed by teleconsultations.

182 subjects (111 men and 71 women) aged from 32 to 71 years have been consecutively followed at home in telemedicine from 1st September to 24th December 2020. We were informed two times daily in morning and evening about body temperature, symptoms (cough, shortness of breath or difficulty breathing, fatigue, muscle of body aches, headache, loss of taste or smell, sore throat, congestion or runny nose, nausea and vomiting, diarrhea) and oxygen saturation measured by digital pulse oximetry.

Therapy association of:

- Low molecular weight heparin (LMWE) (4000 UI or 6000 each day on the basis of weight).
- Corticosteroid, (prednisone 25 mg in the morning and 12,5 in the evening (dosage with anti-inflammatory activity, to reduce the cytokines storm, initiated about 3-4 days after initiation of symptomatology and not after 7-8 days as suggested by other protocols).
- Azithromycin 500 mg for its anti-inflammatory properties, one daily for six days.
- In case of fever and cough induced by COVID-19 but eventually also by bacterial sovrainfection, we suggest using as antibiotics levofloxacin and/or ceftriaxone.
- Lansoprazole 30 mg to prevent gastric hemorrhages.
- Potassium, magnesium and vitamin D supplements when needed.

References

1. WHO. Coronavirus Disease 2019 (COVID-19 Situation Report–57. Available from: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200317-sitrep-57-covid-19.pdf?sfvrsn=a26922f2_2
2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020;395:497-506.
3. Onder G, Rezza G, Brusaferro S. Case-fatality rate and characteristics of patients dying in relation to COVID-19 in Italy. JAMA 2020;323:1775–6.
4. Nardini S, Sanguinetti CM, De Benedetto F, Baccarani C, Del Donno M, Polverino M, et al. SARS-CoV-2 pandemic in Italy: Ethical and organizational considerations. Multidiscip Respir Med 2020;15:672.
5. Sapino A, Facchetti F, Bonoldi E, Gianatti A, Barbareschi M, on behalf of Società Italiana di Anatomia Patologica e Citologia - SIAPEC. The autopsy debate during the COVID-19 emergency: the Italian experience. Virchows Arch 2020;476:821-3.
6. Johns Hopkins University and Medicine [Internet]. Coronavirus Resource Center. COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins (JHU). Available from: https://coronavirus.jhu.edu/map.html
7. Annesi-Maesano I, Maesano C, D'Amato M, D'Amato G. Pros and cons for the role of air pollution on the COVID-19 development. Authorea. December 20, 2020. doi: 10.22541/au.160846652.24234459/v1
8. Pomara C, Li Volti G, Cappello F. COVID-19 deaths: are we sure it is pneumonia? Please, autopsy, autopsy, autopsy! J Clin Med 2020;9:E1259.
9. Mehta P, McAuley DF, Brown M, Sanchez E, Tattersall RS, Man-son JJ, et al. COVID-19: consider cytokine storm syndromes and immunosuppression. Lancet 2020;395:1033-4.
10. Dimer NA, Canto-Soares ND, Santos-Teixeira LD, Goulart BNG. The COVID-19 pandemic and the implementation of telehealth in speech-language and hearing for patients at home: an experience report. Codas 2020;32:e20200144.
11. Tenforde AS, Borgstrom H, Polich G, Steere H, Davis IS, Cotton K, et al. Outpatient physical, occupational, and speech therapy synchronous telemedicine: A survey study of patient satisfaction with virtual visits during the COVID-19 pandemic. Am J Phys Med Rehabil. 2020;99:977-81.
12. Tenforde A Iaccarino M Borgstrom H, Hefner JE, Silver J, Ahmed M, et al. Telemedicine during COVID-19 for outpatient sports and musculoskeletal medicine physicians. PM R 2020;12:926-32.
13. Yang Li , Xian Zhou , Tao Li , Shiji Chan , Yiqi Yu , Jing-Wen Ai, et al. Corticosteroid prevents COVID-19 progression within its therapeutic window: a multicentre, proof-of-concept, observational study. Emerg Microbes Infect 2020;9:1869-77.
14. Shang L, Zhao J, Hu Y, Du R, Cao B. On the use of corticosteroids for 2019-nCoV pneumonia. Lancet 2020;395:683-4.
15. Echeverría-Esnal D, Martin-Ontiyuelo C, Navarrete-Rouco ME, De-Antonio Cuscó M, Ferrández O, Horcajada JP, Grau S. Azithromycin in the treatment of COVID-19: a review. Expert Rev Anti Infect Ther 2020 6:1-17.

Received for publication: 7 January 2021. Accepted for publication: 11 January 2021.

Multidisciplinary Respiratory Medicine 2021; 16:748
doi:10.4081/mrm.2021.748