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Carmine Finelli *

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Mini Review Article

Management and Prevention of Sarcopenia in Era Covid-19

Carmine Finell [1*]

[1] Department of Internal Medicine, Ospedale Cav. R. Apicella – ASL Napoli 3 Sud, Via di Massa, 1, 80040 Pollena (Napoli), Italy.

***Corresponding Author:** Carmine Finelli, Department of Internal Medicine, Ospedale Cav. R. Apicella – ASL Napoli 3 Sud, Via di Massa, 1, 80040 Pollena (Napoli), Italy.

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Abstract

Xanthogranulomatous pyelonephritis (XGP) is a rare and severe manifestation of chronic kidney inflammation that can be critical if not recognized and treated appropriately, often requires surgical intervention along with antibiotics. Most commonly presented in the fifth or sixth decade of life with a prior history of nephrolithiasis, obstructive uropathy, or recurrent urinary tract infections.

Here, we discuss a 45-year-old male and a 73-year-old female who came with abdominal pain and weight loss for two months. An enlarged and distorted renal outline, with altered echotexture and calculus in renal pelvis was revealed on ultrasound examination. Abdominal computed tomography revealed staghorn renal calculi and thinning of renal cortex with involvement of adjacent structures.

Key words: SARS-CoV-2; COVID-19

INTRODUCTION

SARS-CoV-2 infection can induce a wide range of symptoms, from seemingly modest asymptomatic illness to severe acute respiratory failure requiring ventilator support and multi-organ involvement [1]. The infection-induced acute inflammatory response, which includes a significant increase in inflammatory markers up to cytokine storm levels, can harm a range of organs and organ systems [2]. Clinical observation suggests that the patient is at risk of losing 5–10% of body weight during the acute phase of illness, which lasts around 2 weeks [3]. Despite the fact that dehydration and muscle loss are the most common causes, little attention has been paid to the topic [4]. In older patients with coronavirus infection, the risk of acute sarcopenia and potential cachexia should be considerable (COVID-19) [4]. Patient 's clinical evidence, sarcopenia can progress immediately in a matter of a few days (28 days), or gradually over months (6 months) and years [5]. The majority of previous study has been on sarcopenia brought on by age and acute disease [5]. This isn't usually the same as acute sarcopenia, though [5].

Sarcopenia may have an impact on a patient's in-hospital prognosis as well as their vulnerability to post-COVID-19 functional and physical decline [6]. This could involve both pathogenic changes in organ systems and functional decline in patients, as evidenced by difficulty to deal with everyday chores or the emergence of psychologic disorders. Similarly, these large muscle units' functioning was affected. COVID-19 results, as well as the degree of muscle mass and functional loss, may be influenced by a variety of circumstances. Physical inactivity, cardiovascular health, and gut microbiome are all factors to consider in anorexia (due to loss of appetite owing to acute illness, anosmia, and ageusia).

Sarcopenia is marked by a high rate of catabolism. It's hardly surprising, then, that malnutrition is a common ailment among COVID-19-positive older people [7]. In this vein, it has been linked to a greater mortality rate if left untreated, making dietary counseling especially critical in older COVID-19 survivors [8]. This should contain not only calorie intake recommendations, but also protein, vitamin, and mineral recommendations. It's crucial to establish protein requirements and make sure that protein is provided evenly throughout all meals and snacks. These patients' dietary recommendations should include oral nutritional supplements (ONS), especially if the diet alone is unable to meet the nutritional requirements posed by progressive sarcopenia [9]. In people with quickly progressing post-COVID-19 sarcopenia, an ONS of at least 400 kcal per day and 30 g protein or perhaps more could be beneficial. During 30 days, this drug should be completed [10]. In people who are at a particularly high risk of malnutrition, the approach should be increased to 600 kcal per day [11]. The high intensity ONS should be continued for at least 60 days after COVID-19 [12]. The risk of refeeding syndrome should be noted in individuals who are very malnourished or fasting.

COVID-19 and vitamin D deficiency have previously been associated [13]. Vitamin D deficiency has been linked to a poor outcome in COVID-19 patients [13, 14]. Vitamin D supplementation, however, must be proved to reduce the risk of a poor outcome, even in sarcopenic adults. Despite this, vitamin D supplementation has been recognized by authorities in a number of countries as an effective COVID-19 prevention technique in high-risk adults [14]. Vitamin D has been demonstrated to boost muscle strength to some extent in a pooled analysis of data from several interventional studies. The effect was stronger in people who already had a vitamin D deficit [15].

Future investigations should corroborate these findings, leading to a better knowledge of the predictive function of low serum vitamin D levels and the effect of vitamin D supplementation in the initial period post COVID-19 Sarcopenia.

COVID-19 causes death in a large number of patients. The shifting gut microbiota has been linked to changes in immune response, and hence could be linked to increased morbidity and perhaps mortality as a result of COVID-19. Supporting the gut microbiota with probiotics may thereby enhance immunity and aid in the battle against the SARS-CoV-2 infection [16]. Although clear data in the case of post-COVID-19 elderly persons is still absent, probiotics and prebiotics have been indicated to be beneficial to frail older people [17].

In COVID-19 and post-COVID-19 older persons, rehabilitation has been recognized as a particularly useful therapy method [18]. COVID-19 patients have recently been offered a thorough pulmonary rehabilitation regimen. This includes stratified protocols that take the environment and intensity of the pathological involvement into account. Such treatments may be especially important because the COVID-19's organ-related repercussions, such as respiratory or cardiovascular [19], but also psychological, are extensive. Respiratory rehabilitation, which has been demonstrated to enhance pulmonary function in a small six-week study, has also been shown to increase quality of life and reduce anxiety. Rehabilitation is usually a diverse team's job. As indicated by data from persons who had been treated in the Intensive Care Unit setting, combining its conventional forms with other procedures such as dietary intervention and instrumental techniques utilizing neuromuscular electrical stimulation [20] is a crucial part of post-COVID-19 patient rehabilitation.

Physical rehabilitation in sarcopenic post-COVID-19 patients has received little attention in the literature. The majority of studies don't focus on rehabilitation and the efficacy of physiotherapeutic interventions, according to a Cochrane Review released in September 2020, a finding that is consistent with prior reviews [21]. However, after Intensive Care Unit and COVID-19, some evidence supporting the practical benefits of a daily 30-minute multicomponent exercise program that comprised resistance, endurance, and balance training became available [22].

COVID-19 has been associated to the development of a stroke. As a result, conventional post-stroke rehabilitation approaches may be useful in a subgroup of post-COVID-19 patients [23]. The tele system, according to research, could be a viable solution to the dilemma of escalating rehabilitation service demand in a resource-constrained situation [24]. To provide continuity and an adequate level of therapeutic intensity, telerehabilitation involves more repetition of motor exercises [24]. Future studies should be undertaken to evaluate if a similar strategy can be used to treat acute sarcopenia caused by infection.

In conclusion, elderly people suffer higher loneliness as a result of the COVID-19-induced social separation. COVID-19 has indeed been associated with cognitive effects, which has clear implications for regular exercise and, as a result, sarcopenia [25]. As a result, cognitive training programs may be a valuable addition to any post-COVID-19 rehabilitation program aimed to combating sarcopenia.

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References

1. Meijs DAM, van Bussel BCT, Stessel B, et al. Better COVID-19 Intensive Care Unit survival in females, independent of age, disease severity, comorbidities, and treatment. Sci Rep. 2022;12(1):734. Published 2022 Jan 14.
2. Mistry P, Barmania F, Mellet J, et al. SARS-CoV-2 Variants, Vaccines, and Host Immunity. Front Immunol. 2022; 12: 809244. Published 2022 Jan 3.
3. Molfino A, Imbimbo G, Muscaritoli M. The relevance of nutritional and metabolic derangements in COVID-19 patients [published online ahead of print, 2021 Dec 21]. Eur J Intern Med. 2021; S0953-6205(21)00429-5.
4. Soares MN, Eggelbusch M, Naddaf E, et al. Skeletal muscle alterations in patients with acute Covid-19 and post-acute sequelae of Covid-19 [published online ahead of print, 2022 Jan 7]. J Cachexia Sarcopenia Muscle. 2022; 10.1002/jcsm.12896.
5. Rogeri PS, Zanella R Jr, Martins GL, et al. Strategies to Prevent Sarcopenia in the Aging Process: Role of Protein Intake and Exercise. Nutrients. 2021; 14 (1): 52. Published 2021 Dec 23.
6. Ali AM, Kunugi H. Screening for Sarcopenia (Physical Frailty) in the COVID-19 Era. Int J Endocrinol. 2021; 2021: 5563960. Published 2021 May 21.
7. Bedock D, Bel Lassen P, Mathian A, et al. Prevalence and severity of malnutrition in hospitalized COVID-19 patients. Clin Nutr ESPEN. 2020; 40: 214-219.
8. Montefusco L, Ben Nasr M, D'Addio F, et al. Acute and long-term disruption of glycometabolic control after SARS-CoV-2 infection. Nat Metab. 2021; 3 (6): 774-785.
9. Morley JE, Argiles JM, Evans WJ, et al. Nutritional recommendations for the management of sarcopenia. J Am Med Dir Assoc. 2010; 11 (6): 391-396.
10. Barazzoni R, Bischoff SC, Breda J, et al. ESPEN expert statements and practical guidance for nutritional management of individuals with SARS-CoV-2 infection. Clin Nutr. 2020; 39 (6): 1631-1638.
11. Reber E, Friedli N, Vasiloglou MF, Schuetz P, Stanga Z. Management of Refeeding Syndrome in Medical Inpatients. J Clin Med. 2019; 8 (12): 2202. Published 2019 Dec 13.
12. COVID research: a year of scientific milestones [published online ahead of print, 2021 May 5]. Nature. 2021; 10.1038/d41586-020-00502-w.
13. Biesalski HK. Vitamin D deficiency and co-morbidities in COVID-19 patients – A fatal relationship?. Nfs Journal. 2020;20:10-21.
14. Chiodini I, Gatti D, Soranna D, et al. Vitamin D Status and SARS-CoV-2 Infection and COVID-19 Clinical Outcomes. Front Public Health. 2021;9:736665. Published 2021 Dec 22.
15. Halfon M, Phan O, Teta D. Vitamin D: a review on its effects on muscle strength, the risk of fall, and frailty. Biomed Res Int. 2015;2015:953241.
16. Baradaran Ghavami S, Pourhamzeh M, Farmani M, et al. Cross-talk between immune system and microbiota in COVID-19. Expert Rev Gastroenterol Hepatol. 2021;15(11):1281-1294.
17. Liu Q, Mak JWY, Su Q, et al. Gut microbiota dynamics in a prospective cohort of patients with post-acute COVID-19 syndrome [published online ahead of print, 2022 Jan 26]. Gut. 2022; gutjnl-2021-325989.
18. Grund S, Gordon AL, Bauer JM, Achterberg WP, Schols JMGA. COVID-19 Pandemic and Consecutive Changes in Geriatric Rehabilitation Structures and Processes - A Deeper Attempt to Explain the COVID Rehabilitation Paradox (Lessons to Learn to Ensure High Quality of Care in GR Services). J Nutr Health Aging. 2022;26(1):64-66.
19. Urakov A, Urakova N, Gurevich K, Muhutdinov N. Cardiology, respiratory failure, and tolerance of hypoxia in the context of COVID-19: a multidisciplinary perspective. Rev Cardiovasc Med. 2022; 23 (1): 21.

20. Nakano H, Naraba H, Hashimoto H, et al. Novel protocol combining physical and nutrition therapies, Intensive Goal-directed REhabilitation with Electrical muscle stimulation and Nutrition (IGREEN) care bundle. Crit Care. 2021; 25 (1): 415. Published 2021 Dec 4.
21. Negrini S, Mills JA, Arienti C, Kiekens C, Cieza A. "Rehabilitation Research Framework for Patients With COVID-19" Defined by Cochrane Rehabilitation and the World Health Organization Rehabilitation Programme. Arch Phys Med Rehabil. 2021; 102 (7): 1424-1430.
22. Udina C, Ars J, Morandi A, Vilaró J, Cáceres C, Inzitari M. Rehabilitation in adult post-COVID-19 patients in post-acute care with Therapeutic Exercise. J Frailty Aging. 2021; 10 (3): 297-300.
23. Wang CC, Chao JK, Wang ML, et al. Care for Patients with Stroke During the COVID-19 Pandemic: Physical Therapy and Rehabilitation Suggestions for Preventing Secondary Stroke. J Stroke Cerebrovasc Dis. 2020; 29 (11): 105182.
24. Ostrowska PM, Śliwiński M, Studnicki R, Hansdorfer-Korzon R. Telerehabilitation of Post-Stroke Patients as a Therapeutic Solution in the Era of the Covid-19 Pandemic. Healthcare (Basel). 2021; 9 (6): 654. Published 2021 May 31.
25. Gobbi M, Bezzoli E, Ismelli F, et al. Skeletal Muscle Mass, Sarcopenia and Rehabilitation Outcomes in Post-Acute COVID-19 Patients. J Clin Med. 2021; 10 (23): 5623. Published 2021 Nov 29.

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