Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

European Journal of Internal Medicine 77 (2020) 141–142

Contents lists available at ScienceDirect

European Journal of Internal Medicine

journal homepage: www.elsevier.com/locate/ejim

Letter to the Editor

Covid-19 cases in a no-Covid-19 geriatric acute care setting. A sporadic occurrence?

ARTICLE INFO

Keywords:
Coronavirus
Covid-19
Elderly
Frailty
Atrial fibrillation

The pandemic outbreaks of coronarovirus disease 2019 (Covid-19) is associated to a higher risk of complications and mortality in older patients because of their greater complexity and the frequent coexistence of frailty [1]. In Italy, 19.4% of cases are aged ≥80 years; they have a death rate as high as 30.8% [2].

Specific units characterized by different degrees of intensity of care were created to treat Covid-19 patients. However, no-Covid-19 divisions were kept inside each hospital to maintain high standards of assistance to the remaining part of population. The access to these units is limited to patients without clinical signs and symptoms of disease or without viral genome detection using real-time reverse-transcription polymerase chain reaction (RT-PCR) on samples obtained with pharyngeal swabs [3].

Aim of this analysis was to evaluate the proportion of subjects who turned out a Covid-19 clinical picture among the older population admitted to a geriatric acute care 18-bed facility in an Italian tertiary hospital.

Briefly, we retrospectively examined all patients consecutively hospitalized between March 8th (i.e., the Sunday immediately before the starting phase of the national lockdown) and March 31st 2020. The structure of the division was changed to increase the safety of patients and personnel. In particular, two wings were created, one for respiratory and septic cases (Covid-like), and one for those who were hospitalized for other reasons. Medical staff and nurses were authorized to assist patients in the Covid-like area only with protection dressing (i.e., coat, face mask, gloves). No family visits were authorized in the same period in the two parts of the facility.

All patients with uncertain clinical manifestations were admitted in the geriatric unit only after the pharyngeal swab resulted negative in the Emergency Department or in a former facility, in the case of a transfer. However, given the spread of the epidemic in the two-last week of March, the use of the test was promoted in almost every case.

Data were collected in a fully anonymized and pooled way using the hospital electronic chart. They were subsequently analysed using SPSS for Windows (ver. 26.0).

During the observation period, 35 patients were admitted in the geriatric facility. The proportion of men was 51.4% (N = 18), and mean age was 86 ± 6 years. Interestingly, probably due to the lockdown and the other consequences of Covid-19 epidemic, the number of hospitalized patients was lower than that observed in the same period of the preceding year (N = 50). Causes of admission were pneumonia (N = 11, 31.4%), severe urinary infections (N = 4, 11.4%), sepsis (N = 5, 14.3%), cardiovascular diseases (N = 7, 20.0%), neurologic diseases (N = 2, 5.7%), cancer (N = 5, 14.3%) and other conditions (N = 1, 2.9%). Length of stay in hospital was 8.1 days.

Patients had not been evaluated with a pharyngeal swab in only 10 cases (28.6%). Great part of them was hospitalized in the first week of the observation period. Twelve individuals (34.3%) underwent only one test. In 7 (20.0%), 4 (11.4%) and 2 (5.7%) subjects, the procedure was performed 2, 3 and 4 times, respectively. In these last cases the median lag between the first and the last swab was 10 days.

On the whole, Covid-19 manifestation turned out in 4 of the 25 patients (16.0%) that had been previously tested. No cases were observed among the 10 subjects that had not been studied before with the swab. The proportion of disease in the entire population was 11.4% (N = 4/35).

The first positive patient was an 80 years old woman admitted for sepsis, pneumonia and right foot gangrene. She had been transferred from another division after a negative swab. The second patient was an 85 years old man hospitalized for a cancer of the urinary tract, who developed a pneumonia. The third patient was an 83 years old woman admitted from another facility after a head traumatic event leading to a not operable subdural hematoma. Her clinical course was complicated by pneumonia and respiratory failure. The fourth patient was an 83 years old woman coming in hospital for a pneumonia. The length of time elapsed between the admission in the geriatric acute care facility and Covid-19 manifestation was, respectively, 16, 9, 10 and 4 days.

Only one subject was treated with an ACE-inhibitor and, interestingly, in three out of four cases there was a reference, in the history or in the clinical course, to atrial fibrillation, a sign of a cardiovascular and systemic frail condition [4].

After diagnosis, all patients were moved to a Covid-19 unit; however, three of them died after have been transferred.

A fifth patient, a woman, aged 91 years, died in the geriatric acute care facility after four days from the admission because of a severe respiratory failure complicating pneumonia with large bilateral pleural effusions. Even if two pharyngeal swabs were negative for Covid-19, the thoracic CT scan was highly suggestive of disease. She also had a history

https://doi.org/10.1016/j.ejim.2020.04.058
Received 14 April 2020; Received in revised form 23 April 2020; Accepted 27 April 2020
Available online 30 April 2020

of atrial fibrillation.

In the same time period, one physician, one fellow in Geriatrics and one nurse assistant showed clinical signs of disease, with a negative, in the first case, and a positive swab, in the last two cases. Furthermore, at a screening control, one physician presented specific antibodies to coronavirus and one nurse a positive swab.

Even if obtained in a small geriatric population, our findings show that, even after the screening usually operated in the Emergency Department and the careful application of preventive strategies, the possibility to observe a Covid-19 manifestation in a no-Covid-19 geriatric centre is not marginal. In our at-risk elderly population, about one out of six patients had a laboratory demonstration of disease and one out of five showed a clinically evident illness. Given that the median incubation time of disease is 5.1 days [5], we cannot exclude that some of our patients turned out Covid-19 manifestation because of an in-hospital transmission. It is well known that, even if asymptomatic, infected subjects can transmit the infection [6]. Moreover, recent data demonstrated also that, after its first contact, coronavirus can be found on plastic, stainless steel, and cardboard surfaces even for 72, 48 and 24 hours, respectively, thus allowing the nosocomial spread of disease in the absence of an appropriate sanitization [6].

Mortality rate was extremely high. An unfavourable prognosis in old Covid-19 subjects was associated with dyspnoea, lymphocytopenia, comorbidities - including cardiovascular conditions, chronic obstructive pulmonary disease, and acute respiratory distress syndrome development [7]. The high mortality rate we found in subjects ≥80 years could be attributed to the coexistence of other overt severe clinical diseases. Moreover, the initial negative swab could have delayed the begining of a more effective model of care. Interestingly, a false negative result of a swab can be found in 14% of cases, and it could be associated to advanced age, malnutrition and sarcopenia [8], other than poor quality, inappropriate timing of collection and inaccurate handling of the specimen [3]. In these cases, it is recommended to obtain a second sample or, eventually, some material from the lower respiratory tract [3].

The other important aspect we found was the presence of coronavirus infection in the healthcare personnel of the geriatric acute care facility. This result is particularly relevant because it was shown in a no-Covid-19 unit. Notably, it occurred after disease manifestation in patients. Covid-19 appearance in doctors and nurses is particularly challenging because it can significantly contribute to hospital transmission, at the same time enforcing epidemics and limiting patients treatment. In Italy, it was reported to be very high, with about 9% of all the infected subjects involved in healthcare system, and it is unfortunately related to a mortality excess [9]. Sanitary staff should undergo to serial screening tests and visits to further improve infection control [1].

In an attempt to contain disease spread, the geriatric acute-care facility was recently moved in a more modern building, where a wing, dedicated to elective patients, had been completely left empty. This change of location should allow a more complete attainment of distancing among patients and healthcare providers, and a more effective sanitization of rooms.

In conclusion, despite the use of strategies aimed at controlling inappropriate admissions and at limiting in-hospital spread of disease, coronavirus infection seems to be frequent even in no-Covid-19 facilities for the acute care of older people. Accordingly, further efforts could be necessary to improve a high risk situation worsened by loneliness [10] and the clinical complexity of advanced age.

Informed consent and Ethical Committee

Given the nature of the study and the fully anonymized extraction of data, Ethical Committee submission was waived and informed consent was not requested.

Declaration of Competing Interests

The authors declare they have no conflict of interest.

Funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

[1] McMichael TM, Currie DW, Clark S, Pogosjans S, Kay M, Schwartz NG, et al. Epidemiology of Covid-19 in a Long-Term Care Facility in King County, Washington. The New England journal of medicine 2020.
[2] Istituto Superiore di Sanità. Integrated surveillance of COVID-19 in Italy. 2020. Accessed at: https://www.epicentro.iss.it/en/coronavirus/bollettino/Infografica_5aprile%20ENG.pdf.
[3] World Health Organization. Laboratory testing for coronavirus disease (COVID-19) in suspected human cases. 2020. Accessed at: https://www.who.int/publications-detail/laboratory-testing-for-2019-novel-coronavirus-in-suspected-human-cases-20200117.
[4] Fumagalli S, Potpara TS, Bjerregaard Larsen T, Haugaa KH, Dobreanu D, Proclemer A, et al. Frailty syndrome: an emerging clinical problem in the everyday management of clinical arrhythmias. The results of the European Heart Rhythm Association survey. Europace: European pacing, arrhythmias, and cardiac electrophysiology. journal of the working groups on cardiac pacing, arrhythmias, and cardiac cellular electrophysiology of the European Society of Cardiology 2017;19:1896–902.
[5] Lauer SA, Grantz KH, Bi Q, Jones FK, Zheng Q, Meredith HR, et al. The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. Ann Intern Med 2020.
[6] van Doremalen N, Bushmaker T, Morris DH, Holbrook MG, Gamble A, Williamson BN, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. The New England journal of medicine 2020;382:1564–7.
[7] Wang L, He W, Yu X, Hu D, Bao M, Liu H, et al. Coronavirus Disease 2019 in elderly patients: characteristics and prognostic factors based on 4-week follow-up. J Infect 2020.
[8] YajunYuan Wang N, Ou X. Caution should be exercised for the detection of SARS-CoV-2, especially in the elderly. J Med Virol 2020.
[9] Anelli F, Leoni G, Monaco R, Nume C, Rossi RC, Marinoni G, et al. Italian doctors call for protecting healthcare workers and boosting community surveillance during covid-19 outbreak. Bmj 2020;368:m1254.
[10] Armitage R, Nellums LB. COVID-19 and the consequences of isolating the elderly. Lancet Public Health 2020.

Stefano Fumagalli[a,*], Bernardo Salani[b], Luciano Gabbani[b], Enrico Mossello[a], Andrea Ungar[a]
[a] *Geriatric Intensive Care Unit, Department of Experimental and Clinical Medicine, University of Florence and AOU Careggi, Florence, Italy*
[b] *Geriatric Medicine Unit, AOU Careggi, Florence, Italy*
E-mail address: stefano.fumagalli@unifi.it (S. Fumagalli).

[*] Corresponding Author. Associate Professor of Internal Medicine – Geriatrics, Geriatric Intensive Care Unit and Geriatric Arrhythmia Unit, Department of Experimental and Clinical Medicine, University of Florence and AOU Careggi, Largo Brambilla 3, 50134, Florence, Italy