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Recommendations for the management of COVID-19 pandemic in long-term care facilities

Background

In December 2019 several cases of pneumonia of unknown origin were reported in Wuhan, China, leading to the identification of severe acute respiratory syndrome coronavirus type 2 (SARS-CoV-2). Since then, more than 80 million people have been infected by SARS-CoV-2 and up to 1.8 million people have died [1]. It became clear early in the pandemic that older adults and particularly the oldest-old have the highest mortality risk. Among those aged 80 years and over the case fatality rate is up to 13.4%, with an infection fatality rate of 9.3% [2]. Residents of long-term care facilities (LTCF) are considered to be the most vulnerable group. Estimates from different countries suggest that between 30% and 66% of all coronavirus disease 2019 (COVID-19) deaths were nursing home residents, and up to 80% died in a LTCF [3]. National surveillance data which include longitudinal data on COVID-19 in LTCF have shown that seven countries have reported an increase in both cases and deaths of residents since July 2020 [3]. Despite these facts and the crucial need for guidance, recommendations for the management of COVID-19 in LTCFs are still lacking. The aim of this paper is to provide recommendations for the prevention, treatment and provision of useful equipment for LTCFs based on

the current literature. The recommendations are addressed to LTCF management, their operators, physicians working in LTCFs and also politicians to provide the necessary framework conditions. We are confident that our recommendations offer important help and guidance for LTCFs as well as physicians.

Recommendations for prevention of SARS-CoV-2 infections in LTCFs

- Designate a person in charge within each LTCF who will lead and support the implementation of preventive measures within the facility, in cooperation with a hygiene specialist [3].
- Provide easy access for all staff members to information and resources in terms of guidelines, guidance and procedures regarding the prevention and control of COVID-19 as well as access to appropriate equipment, which will support and ensure safe care routines [3].
- Provide sufficient personal protective equipment for staff members as well as residents. Staff members should wear FFP (filtering face piece)2 masks. For special tasks which may be aerosol-generating (e.g. care of a patients with tracheostomy), FFP3 masks and face shields should be

available [4]. Staff members should be trained to use their personal protective equipment in a correct way. Educational videos could be a good option to make the information available.

- In order to safeguard continuity of care, ensure adequate access to external consultation services for healthcare [3]. Identify residents' needs and move them to the appropriate clinical area and to the appropriate healthcare facility in a timely and efficient manner.
- All staff members should be tested regularly, at least once weekly using a rapid antigen test. If a case is identified, all staff members and residents should be tested [3].
- Care for all team members, addressing their concerns and fears, especially for those who have been tested positive for SARS-CoV-2. During a pandemic, public health systems and official help lines are often overloaded. Offer an option for counselling and social support.
- Formulate key messages on the essential measures needed to be adhered to by staff members to minimize the introduction of COVID-19 infection into LTCFs [3].
- If possible, avoid nursing home overcrowding. Crowded homes are more likely to experience larger and

deadlier COVID-19 outbreaks [5]. The nursing home crowding index is the mean number of residents per bedroom and bathroom [5].

- Establish procedures for the (re)admission of LTCF residents recuperating from COVID-19-related symptoms to prevent the introduction of infection to a facility [3].
- Establish risk-based and proportional infection prevention and control measures that will allow safe visits to residents. Allowing external visitors should be strongly considered [3]. In accordance with staff members, reinforce messages on the essential measures for minimizing the introduction of COVID-19 infection into LTCFs by relatives and visitors. Offer them information about the risks and the consequences of an outbreak and give them clear instructions about your safety measures. Relatives and visitors should use a medical mask, not a community mask, preferably FFP2. Depending on the local incidence, rapid antigen tests should also be used for relatives and visitors (incidence more than 50/100,000 per week).
- Develop standard operating procedures (SOP) for managing residents with symptoms of COVID-19, for residents tested positive for SARS-CoV-2 and for contact persons, including access to testing, isolation of patients, and use of personal protective equipment [3]. Even SARS-CoV-2 is mainly transmitted by droplets and aerosols, hygienic hand disinfection is crucial, particularly in the setting of a LTCF [6]. Minimize forms of personal contact which may increase the risk of COVID-19 transmission, for example, by ensuring physical distancing, universal masking, adequate ventilation, hand washing facilities, and adapting how different activities are organized within the facilities [3].
- Disinfection is recommended for common areas and resident rooms. In addition, ventilation plays a key role for the prevention of respiratory infections in healthcare settings.

A minimum number of air exchanges per hour should be ensured at all times (every 30 min) [3].

- Include break rooms, changing rooms and restrooms for staff members in your preventive measures.
- Vaccination of people aged 65 years and older against pneumococcus and influenza is strongly recommended. Vaccination against influenza for all staff members regardless of age, is also recommended [3].
- Vaccination against COVID-19 is now available. People aged over 60 years and above and especially those living in LTCF, as well as healthcare workers in LTCF should be prioritized [3]. Inform your staff members, residents and their relatives about vaccinations and encourage them to consent to vaccination. High vaccination coverage will be crucial for a successful termination of COVID-19 pandemic.

General considerations for an individual treatment approach

- In the current context of the COVID-19 pandemic end-of-life decisions are both more acute—as the disease more severely affects those who are older or have multiple comorbidities—and more heightened in the sense that healthcare systems are overloaded. The process and outcomes of decision-making for older people are affected by many factors, all of which have the potential to influence both patients and caregivers experience of illness and dying. Within the context of COVID-19, such decisions may have to be made rapidly and be reflexive to changing needs of systems and of families and patients [7].
- Assess your residents using the Clinical Frailty Scale (CFS) and the Charlson Comorbidity Index (CCI) [8, 9]. A CFS of 6 or more is significantly correlated with increased risk of COVID-19 mortality [10]. A CCI of 4 or more is also a strong predictor for poor outcome among older adults [11].
- Inform the residents and their relatives about COVID-19. Discuss

and document residents' wishes, particularly in terms of admissions to hospital and intensive care treatment. If medical recommendation differs from patient's or relatives wishes, try to achieve a consensus.

- Physicians should involve nursing staff in the decision-making process, to define clear treatment goals. Goals should be consented by residents, their relatives as well as all team members.
- Document your goals in a way that the information can be obtained easily for all team members.
- Reassess and change your treatment goals if necessary, or if the clinical situation has changed.

Medical treatment for asymptomatic patients with a positive SARS-CoV-2 test result

- Asymptomatic residents must be isolated for at least 10 days. Hospital admission is not indicated.
- Start counselling and provide social support immediately after informing the patient. If it is the wish of your resident, inform family members as well.
- Medication change is not necessary. Inhalations should be stopped because of the increased risk of acquiring infectious aerosols.
- Consider Vitamin D replacement if you suspect Vitamin D deficiency. We propose a pragmatic approach without testing Vitamin D levels. The rationale for using Vitamin D is based largely on immunomodulatory effects that could potentially protect against SARS-CoV-2 infection or decrease the severity of illness [12]. It could be useful to start with a bolus of 20,000–40,000 IU and switch to a regular daily dose of 2000 IU.
- Consider zinc replacement if you suspect zinc deficiency. We propose a pragmatic approach without testing zinc levels. Zinc deficiency results in immune dysfunction and promotes systemic inflammation [13, 14]. Apart from that, age-related decline in zinc status may be one po-

tential mechanism that contributes to increased susceptibility to inflammation with age [15]. Even in developed countries, a considerable prevalence of severe zinc deficiency of up to 20% or more is found among older adults [16]. Although the National Health Institute (NHI) guidelines do not specifically recommend zinc replacement [17], it could be an option especially for older adults as the side effects are negligible. The recommended dose for older adults is 50 mg zinc aspartate twice daily.

- Check your resident regularly for clinical symptoms and assess vital signs three times per day (temperature, heart rate, blood pressure, oxygen saturation). Measuring oxygen saturation is useful to detect the so-called silent hypoxia, which is frequently seen in early COVID-19 patients [18].
- Be aware of atypical clinical presentations (e.g. confusion, fatigue, nonspecific worsening of health status, increase of disabilities) of SARS-CoV-2 infections, particularly in older adults [19]. Any changes in their health status should be carefully documented.
- If the resident's functional capacity allows for physical exercises, motivate them to keep mobile and provide instructions for physical exercises in the room.

Medical treatment for symptomatic patients with a positive SARS-CoV-2 test result who refuse a hospital admission

- Symptomatic residents must be isolated for at least 10 days. After that time, isolation could end if residents are free of symptoms for at least 2 days.
- Provide counselling and social support immediately after informing the patient. If it is the wish of your resident, inform family members as well.
- No medication change is necessary. Inhalations should be stopped be-

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Recommendations for the management of COVID-19 pandemic in long-term care facilities

Abstract

Long-term care facilities (LTCF) and their vulnerable residents are particularly affected by the coronavirus disease 2019 (COVID-19) pandemic. Estimates from various countries suggest that 3–66% of all COVID-19 deaths were residents of LTCF, of which 80% died in their facilities. Despite these significant numbers, recommendations for LTCF for the prevention and medical care of residents during the COVID-19 pandemic are still lacking. These recommendations are based on the existing literature and the expertise of the authors who are specialists in geriatric medicine. The recommendations

are addressed to LTCF management, their operators, physicians working in LTCFs and also politicians, to provide the necessary framework conditions. We are confident that our recommendations will offer important help and guidance for LTCFs as well as their physicians. Adherence to these recommendations is likely to improve the outcomes and care of residents in long-term facilities during the COVID-19 pandemic.

Keywords

Long-term care facilities · Older adults · SARS-CoV-2 · Prevention · Treatment

Empfehlungen für die medizinische Versorgung von Bewohnern in Langzeitpflegeeinrichtungen im Rahmen der COVID-19-Pandemie

Zusammenfassung

Langzeitpflegeeinrichtungen (LPE) und deren vulnerable Bewohner sind im besonderen Maße von der COVID-19-Pandemie betroffen. Schätzungen aus verschiedenen Staaten legen nahe, dass 30 bis zu 66% aller an COVID-19 Verstorbenen Bewohner von LPE sind, wobei 80% derer wiederum auch in ihrer Einrichtung verstorben sind. Trotz dieser dramatischen Zahlen fehlen bisher Empfehlungen für LPE zur Prävention und medizinischen Betreuung von Bewohnern im Rahmen der COVID-19-Pandemie. Die vorliegenden Empfehlungen basieren auf der aktuell verfügbaren Literatur sowie der geriatrischen Expertise der Autoren. Die

Empfehlungen richten sich an Heimleitungen bzw. die Betreiber von LPE, an die dort tätigen Ärzte, aber natürlich auch an die Politik, um die erforderlichen Rahmenbedingungen sicherzustellen. Wir sind überzeugt, dass wir mit unseren Empfehlungen eine wichtige Hilfe für die LPE und die behandelnden Ärzte bieten und mit großer Wahrscheinlichkeit auch das Outcome sowie die Versorgung der Bewohner in Langzeiteinrichtungen in Hinblick auf COVID-19 verbessern können.

Schlüsselwörter

Pflegeheime · Geriatrie · SARS-CoV-2 · Prävention · Therapie

cause of the increased risk of getting infectious aerosols.

- Bear in mind the comorbidities of your resident. Treat and assess them thoroughly (e.g. diabetes, heart failure, hypertension, chronic lung diseases, e.g. chronic obstructive pulmonary disease, renal failure, rheumatism, chronic pain syndrome).
- Analogous to the medical treatment for asymptomatic patients with a positive SARS-CoV-2 test result, consider Vitamin D and zinc replacement if indicated (as mentioned in

medical treatment for asymptomatic patients with a positive SARS-CoV-2 test result).

- In the absence of contraindications, start thromboprophylaxis. Venous thromboembolism (VTE) is probably one of the most frequent complications of COVID-19 [20]. Residents should receive VTE prophylaxis as standard care for older adults [20]. Low molecular heparin can be used for prophylaxis (e.g. enoxaparin 40 mg subcutaneous once daily). Whilst for severely ill patients this dose may be too low, we don't rec-

ommend a higher dosage outside hospitals. Currently there are no clear recommendation about duration of thromboprophylaxis [21]. A German expert group recommends thromboprophylaxis for the whole duration of COVID-19 [22].

- If a resident is already on oral anticoagulation or antiplatelet therapy, they should continue taking them. There is no reason to change it, except in cases where bleeding occurs or a high bleeding risk is suspected. Residents who are only on an antiplatelet drug should receive thromboprophylaxis as per standard care for older adults.
- Aspirin use is associated with decreased rate of mechanical ventilation, intensive care unit (ICU) admission, and in-hospital mortality in hospitalized patients with COVID-19 [23]. Although these are results from a retrospective study, low-dose aspirin might be an option for patients with a high risk for myocardial infarction or stroke. Consider the use of low-dose aspirin (e.g. 100 mg per day), weigh up the risks and benefits and do not forget to combine it with proton pump inhibitor (PPI).
- In treating fever (>38.5°) use acetaminophen up to 500 mg every 6 h. We recommend auricular temperature measurement [24].
- Check your residents regularly for clinical symptoms and assess vital signs three times per day (temperature, heart rate, blood pressure and oxygen saturation).
- Be aware of atypical clinical presentations of SARS-CoV-2 infections (as mentioned above), particularly in older adults [19]. Any changes in their health status should be carefully documented.
- If the resident's functional capacity allows physical exercises, motivate them to keep mobile and provide instructions for physical exercises in the room.
- Oxygen is recommended for residents with dyspnea. The goal is to achieve an oxygen saturation of more than 90%, and in cases of COPD (chronic obstructive pulmonary disease),

more than 88% [25]. Start with a dose of 2–4 l/min using a nasal tube.

- In residents with severe dyspnea or for palliative sedation purposes, use low-dose strong opioids if needed (e.g. hydromorphone 1–2 mg s.c. every 4 h). The dosage of opioids depends not only on the symptoms, but also on the fact if a patient is opioid naive or not. Therefore, a close monitoring is crucial. For palliative sedation benzodiazepines can also be helpful (e.g. midazolam 2.5–5 mg s.c.).
- Antibiotic treatment is not recommended but consider bacterial and/or mycotic (aspergillus) superinfection in a prolonged course. If you start antibiotic treatment, treat it as a nosocomial infection.
- Ensure sufficient nutrition and hydration but be aware of fluid overload. Subcutaneous infusion is commonly used in LTCF.
- In residents with severe COVID-19, (defined by oxygenation below 90% and breathing rate higher than 30 per min), consider dexamethasone 6 mg orally per day for 10 days. [25]. Be aware of glucocorticoid-induced hyperglycemia. Blood sugar controls are needed.
- Re-evaluate your treatment goals and adapt if needed.

Medical treatment for symptomatic patients with a positive SARS-CoV-2 test result where hospital admission is accepted by residents and is medically indicated

- The basic recommendations do not differ from residents with an individual and/or medical treatment limitations.
- Check regularly for indications for hospital admission. If oxygen is needed to reach an oxygen saturation of more than 94% (in patients without chronic lung disease), consider transfer to the nearest hospital [26]. Prepare all useful information, especially patient's wishes or advanced directives, your current treatment plan, medical reports, medication

and specific scores like the CFS and CCI.

Special equipment for LTCF to manage COVID-19

- Unfortunately, many LTCF do not offer oxygen. Oxygen is probably the most important drug for treatment. Even in palliative care situations, it is crucial for patient's comfort and well-being. If LTCF is not equipped with oxygen, organize mobile oxygen apparatus.
- Pulse oximeters are crucial for the evaluation and treatment of COVID-19 residents. Due to hygiene considerations, LTCFs should have a sufficient number of small medical devices, such as blood pressure monitors, stethoscopes, clinical thermometers and pulse oximeters.

Conclusion

The evidence for treatment recommendations of COVID-19 in LTCF is still poor. Our recommendations are based on existing literature and the clinical expertise of geriatricians. Nonetheless, we are confident that these recommendations will be helpful to LTCFs as well as general practitioners and may improve the outcomes of LTCF residents.

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Compliance with ethical guidelines

Conflict of interest. M. Gosch, H.J. Heppner, S. Lim and K. Singler declare that they have no competing interests.

Ethical standards. For this article no studies with human participants or animals were performed by any of the authors. All studies performed were in accordance with the ethical standards indicated in each case.

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Neue Wege zur Behandlung von Rheuma

Der Avrion Mitchison Preis 2020 geht an zwei Nachwuchswissenschaftler.

Einmal im Jahr verleiht das Deutsche Rheuma-Forschungszentrum Berlin (DRFZ) den Avrion Mitchison Preis an junge Wissenschaftler, die einen wesentlichen Beitrag zum Verständnis und zur Behandlung von rheumatischen Erkrankungen leisten. 2020 ging diese Auszeichnung an Lennard Ostendorf von der Charité-Universitätsmedizin Berlin und Dr. Richard Addo von der Medigene AG München.

Lennard Ostendorf beschreibt in seiner Arbeit den erstmaligen erfolgreichen Einsatz des Wirkstoffs Daratumumab bei zwei lebensbedrohlich an Systemischem Lupus Erythematoses (SLE) erkrankten Patientinnen. Er konnte zeigen, dass Daratumumab in den Patientinnen aktivierte Immunzellen ausschaltet, darunter auch die von anderen Therapien nicht erfassten Plasmazellen, die krankmachende Autoantikörper produzieren. Daratumumab eignet sich deshalb nicht nur für die Therapie von SLE-Patienten, sondern wahrscheinlich auch für Patienten mit anderen Antikörpervermittelten Erkrankungen der Gelenke, des Nervensystems, der Lunge oder des Darms.

Dr. Richard Addo erhält den Preis für seine Entdeckung von gewebeständigen Gedächtnis-B-Lymphozyten. Diese Zellen sind die Vorläufer der Plasmazellen und als solche entscheidend an rheumatischen Krankheiten beteiligt. Die bisher unbekanntenen Gedächtnis-B-Lymphozyten in Knochenmark und Milz eröffnen deshalb neue Möglichkeiten für die Behandlung von Rheuma.

Der Avrion Mitchison Preis wird zu Ehren des Gründungsdirektors des DRFZ vergeben. Er wird international ausgeschrieben und ist mit 3.000 Euro dotiert.

Quelle: Deutsches Rheuma-Forschungszentrum Berlin, www.drffz.de