

On the Pharmacy Radar: COVID-19 and Older People

Chris Alderman

The COVID-19 pandemic presents many medical and social issues for older people. Presented here is a range of information arising from related areas that have impact upon the safety and efficacy of drug therapy in the context of COVID-19. Issues include pharmacy practice, clinical therapeutics, and possible new treatments for the virus. More information will be published in coming issues of *The Senior Care Pharmacist*.

KEY WORDS: COVID-19, Drug information resources, Drug shortages, Food and Drug Administration, Pharmacist, Surface disinfection, Virus.

ABBREVIATIONS: ACE inhibitor = Angiotensin-converting enzyme inhibitor, ARB = Angiotensin receptor blockers, ACC = American College of Cardiology, AHA = American Heart Association, FDA = Food and Drug Administration, HFSA = Heart Failure Society of America, WHO = World Health Organization.

The rapidly changing COVID-19 pandemic presents an ongoing and evolving range of clinical and societal issues profoundly affecting older people. There will be significant health challenges from issues that may not have yet been anticipated. *The Senior Care Pharmacist* will carry periodic updates addressing issues relevant to pharmacotherapeutics and pharmacy practice as these relate to the care of older people in the time of the pandemic crisis. The brief news items that are provided here are not intended to be substitutes for a careful and comprehensive consideration of the issues involved, but rather to provide initial awareness of concepts and to stimulate more complete situational analysis by pharmacists. If readers are aware of issues in this space that they feel would be of interest to the journal's readership, please email feedback directly to me, the editor-in-chief, at calderman@ascp.com.

Medicines Supply Shortages

The COVID-19 pandemic will impact transportation and distribution logistics for pharmaceutical goods. This may influence the importation of medicines into countries from other nations, the distribution of stock from wholesalers, moving medicines to senior care facilities, and the distribution of medicines to community-dwelling older people who may not be able to move around normally because of "lock-down" conditions or other reasons. Different nations are monitoring this situation through specific regulatory agencies. In the United States, the Food and Drug Administration (FDA) continues to actively monitor the medicines in the supply chain. FDA has asked manufacturers to evaluate their entire supply chain, identifying any elements that could be affected. Pharmacists should report any drug shortages to DRUGSHORTAGES@fda.hhs.gov. The current standing of potential drug shortages known to FDA is tabulated and searchable [here](#).

COVID-19 Viral Survival on Surfaces

The possibility that the COVID-19 virus may be able to survive on surfaces for some period of time outside of a human host is of particular concern in the community as well as organized health care settings such as



COVID-19 and Older People

hospitals and nursing facilities. Until much more is known about the ability of the virus to survive on surfaces, the adoption of a conservative approach is strongly recommended. At least some new information is now on hand, and the results of research suggest that the need for caution is indeed warranted. In a research letter published in the [New England Journal of Medicine](#), investigators describe the results of experiments comparing the COVID-19 virus (now also referred to as severe acute respiratory syndrome coronavirus 2—SARS-CoV-2) and SARS-CoV-1, the most closely related human coronavirus. The experiment tested the stability of SARS-CoV-2 and SARS-CoV-1 in aerosols and on surfaces comprising different materials. Aerosols (< 5 m) containing SARS-CoV-2 or SARS-CoV-1 were generated with a nebulizer and fed into a Goldberg drum to create an aerosolized environment. The inoculum resulted in cycle-threshold values similar to those observed in samples obtained from the upper and lower respiratory tract in humans. The experiment examined the viability of the two viruses in various environmental conditions (aerosols, plastic, stainless steel, copper, and cardboard). SARS-CoV-2 remained viable in aerosols throughout the duration of the experiment (3 hours), similar to SARS-CoV-1. SARS-CoV-2 (COVID-19) was more stable on plastic and stainless steel than on copper and cardboard, and viable virus was detected up to 72 hours after application to these surfaces, (though the titer was greatly reduced after 72 hours on plastic and 48 hours on stainless steel). On copper, no viable SARS-CoV-2 was measured after four hours, and on cardboard, no viable SARS-CoV-2 was measured after 24 hours. Both viruses had an exponential decay in virus titer across all experimental conditions, the half-lives of SARS-CoV-2 and SARS-CoV-1 were similar in aerosols, and the half-lives of the two viruses were also similar on copper. On cardboard, the half-life of SARS-CoV-2 was longer than that of SARS-CoV-1. The longest viability of both viruses was on stainless steel and plastic; the estimated median half-life of SARS-CoV-2 was approximately 5.6 hours on stainless steel and 6.8 hours on plastic. Given that the stability of the SARS-CoV-2 was similar to that of SARS-CoV-1 under experimental conditions, this might suggest that differences in the epidemiologic characteristics of the viruses arise from other factors

ASCP's Response to Coronavirus (COVID-19) Preparation and Support

ASCP pharmacists represent a critical line of defense to our nation's medically complex and older adult patients. Since the start of the pandemic, ASCP has been actively working on the following:

1. Educating our members and the industry on the latest COVID-19 updates through weekly free, live webinars, an updated landing page (ascp.com/disaster), and an online discussion board.
2. Leading the development and dissemination of a joint pharmacy organization policy document, Pharmacists Call for New Action to Enhance COVID-19 Patient Care.
3. Ensuring that our pharmacists are equipped with the latest information regarding the response from HHS and information regarding the evolution of COVID-19.
 - A sample policy and procedure for congregate care environments
 - Resources and links to the latest information and guidance
 - Guidance from CMS regarding how to perform their responsibilities in cases of restricted access and outbreak
4. Working to determine how telehealth could temporarily serve as a solution for the medication management review (MRR) required in SNFs, ICFs and for patients restricted to their homes.
5. Working on legislative efforts to provide safety and security to our medication supply chain, including up to date information on any medications nearing shortages and alternatives for those medications already in short supply.
6. Determining what emergency resources are available to pharmacies and pharmacists to support their efforts in preventing and mediating COVID-19.

Go to ascp.com/disaster for more information and resources.

COVID-19 and Older People

such as high viral load in the upper respiratory tract and/or potential shedding of COVID-19 viral particles while a person has no symptoms. Aerosolization and contamination of fomites (objects or materials that can carry infection, such as clothes, utensils, and furniture) appear to be feasible causes of transmission of SARS-CoV-2.

Issues Related to Therapeutics

As the pandemic progresses, a range of issues relating to the therapeutic use of medications is beginning to warrant consideration. To this point, there is relatively sparse information available relating to specific therapies that may be of assistance in the management of COVID-19 infections, and clinical trials of specific vaccine strategies are in relatively early phases—these trials would not necessarily be expected to yield a clinically useful product that can be used for a broader population in the near future. Nevertheless, some trials have begun: a Phase 1 clinical trial of an investigational vaccine against COVID-19 has started, funded by the National Institute of Allergy and Infectious Diseases. The trial will not enroll older people, as the subjects will be limited to 45 healthy adult volunteers 18 to 55 years of age, and the first dose of the experimental vaccine was administered March 16, 2020. The design of the trial will involve each participant receiving a 25 mcg, 100 mcg, or 250 mcg dose at both of two vaccinations, with 15 subjects in each dose cohort. The first four participants will receive one intramuscular injection at the lowest dose; the subsequent four participants will receive the 100 mcg dose. Safety data will be reviewed before vaccinating the remaining participants in the 25 mcg and 100 mcg dose groups before second vaccinations. A further safety review will be undertaken as vaccinations proceed at the 250 mcg dose—further details are available [here](#).

In a climate of uncertainty and apprehension among the general public, like many health care professionals, pharmacists are being approached by colleagues and by members of the public seeking information about the options for the treatment of COVID-19 illness. Unfortunately, at this point there is no specific

Resources Discussed

- [HFSA/ACC/AHA Statement Addresses Concerns Re: Using RAAS Antagonists in COVID-19](#)
- [Current and Resolved Drug Shortages and Discontinuations Reported to FDA](#)
- [The New England Journal of Medicine: Aerosol and Surface Stability of SARS-Cov-2 as Compared with SARS-Cov-1](#)
- [NIH clinical trial of investigational vaccine for COVID-19 begins](#)
- [MedScape: Coronavirus Disease 2019 \(COVID-19\)](#)
- [University of Liverpool: COVID-19 Drug Interactions](#)
- [Chloroquine and hydroxychloroquine as available weapons to fight COVID-19](#)
- [The Lancet: Are Patients with Hypertension and Diabetes Mellitus at Increased Risk for COVID-19 Infection?](#)

definitive intervention that can be offered in the form of pharmacotherapy, and the most useful strategies available are focused upon good quality supportive care, if necessary, provided in an intensive care unit and involving mechanical ventilation. Pharmacists may also be approached to provide information about potential experimental approaches to the treatment of COVID-19 infections. Though no definitive treatments have yet to be identified, those interested to see details of medications that have been in trials can access [this resource](#). A useful guide to experimental drugs used for COVID-19 infections, specifically focusing on drug interactions, is available and regularly updated by staff at the University of Liverpool, and can be accessed [here](#). There is emerging interest in hydroxychloroquine and chloroquine as potential antiviral agents that might be deployed in treating COVID-19; details may be accessed [here](#).

Other areas of uncertainty relate to the optimal strategies for the use of conventional pharmacotherapy for the management of comorbidities encountered among people with COVID-19 infection. In particular,



COVID-19 and Older People

there has been commentary in the medical community about the possibility that particular medications may in fact worsen the prognosis of people affected, or perhaps increase the likelihood that an individual will become infected. The most noteworthy of these examples relates to the current discussion connected to angiotensin-converting enzyme inhibitors (ACE inhibitors) and angiotensin receptor blockers (ARBs), both of which are widely prescribed for older people and are commonly employed for the treatment of medical conditions such as congestive heart failure, hypertension, and diabetic nephropathy. Much of this discussion has stemmed from a piece that was published in [The Lancet](#). Fang and coworkers discuss the observation that hypertension, diabetes mellitus, and heart diseases are frequent comorbidities reported among people with adverse outcomes in the context of COVID-19 infections and that patients with these conditions are often treated with ACE inhibitors or ARBs. They note that human pathogenic coronaviruses bind to target cells via angiotensin-converting enzyme 2 (ACE2), which is expressed by epithelial cells of the lung, intestine, kidney, and blood vessels, and that expression of ACE2 is substantially increased in patients with diabetes. Furthermore, they note that when hypertension is treated with ACE inhibitors and ARBs, this results in an upregulation of ACE2. They also state that this upregulation can also be increased by the effects of thiazolidinediones and ibuprofen, and hypothesize that diabetes and hypertension treatment with ACE2-stimulating drugs increases the risk of developing severe and fatal COVID-19.

Though their observations should be regarded as hypothesis-generating only, given the pervasive influence of social media, the paper appears to have caused further apprehension in the lay community. This, in turn, has generated concern that people may interpret this information as a reason to stop taking their medications, which may have potentially serious consequences. In response to this, learned professional groups in North America and Europe have issued statements pointing out that the relationship identified by Fang and colleagues is theoretical, and they caution that it is unwise to discontinue treatment with prescribed medicines until such time as consultation

with the medical professional supervising treatment has taken place. The American Heart Association (AHA), the Heart Failure Society of America (HFSA), and the American College of Cardiology (ACC) issued a joint statement addressing the issue on March 17, 2020, after a similar communication from the European Society of Cardiology issued a statement on March 13, 2020. The joint AHA/HFSA/ACC statement provides this guidance:

Currently there are no experimental or clinical data demonstrating beneficial or adverse outcomes with background use of ACE inhibitors, ARBs, or other RAAS antagonists in COVID-19 or among COVID-19 patients with a history of cardiovascular disease treated with such agents. The HFSA, ACC, and AHA recommend continuation of RAAS antagonists for those patients who are currently prescribed such agents for indications for which these agents are known to be beneficial, such as heart failure, hypertension, or ischemic heart disease. In the event patients with cardiovascular disease are diagnosed with COVID-19, individualized treatment decisions should be made according to each patient's hemodynamic status and clinical presentation. Therefore, be advised not to add or remove any RAAS-related treatments, beyond actions based on standard clinical practice.

The statement can be accessed [here](#) and may be specifically useful for pharmacists fielding inquiries from the public or from prescribers.

Another Issue that has attracted some degree of controversy relates to whether paracetamol should be preferred as an anti-inflammatory and antipyretic agent for people infected with COVID-19, rather than ibuprofen. A warning promulgated by French Health Minister Olivier Veran suggested that consumers would be better to avoid the use of ibuprofen. Information continues to evolve, and it is noteworthy that after having issued a statement suggesting that paracetamol should in fact be preferred, the World Health Organization (WHO) has now reversed its position and the information available on the organizations official twitter account states:



COVID-19 and Older People

At present, on currently available information, WHO does not recommend against the use of ibuprofen. We are also consulting with physicians treating COVID-19 patients and are not aware of reports of any negative effects of ibuprofen beyond the usual known side effects that limit its use in certain populations. WHO is not aware of published clinical or population-based data on this topic.

It is clear that information continues to evolve, and pharmacists involved in the care of older people with COVID-19 infection should take every possible care to ensure that the information on which they base their therapeutic recommendations is as current as possible. At a time when great challenges are facing the medical community, pharmacists, and older people, *The Senior Care Pharmacist* is seeking to play its part in maintaining the information flow.

Chris Alderman, B Pharm, PhD, FASCP, FSHP, BCGP, BCPP
Editor-in-chief of *The Consultant Pharmacist*.

© 2020 American Society of Consultant Pharmacists, Inc.

All rights reserved.

[Doi:10.4140/TCP.n.2020.190](https://doi.org/10.4140/TCP.n.2020.190)

Sr Care Pharm 2020;35:190-4.

