

COVID-19 and Aging

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A novel coronavirus

A novel coronavirus emerged 5 months ago in China, it rapidly led to a global pandemic. The human population is highly susceptible (non-immune) to this virus. Most of us have been exposed to the four seasonal coronaviruses that cause common colds – but these past infections are not producing immunity against this novel virus.

The new virus, called SARS-CoV-2, has shown dangerous potential to produce a serious illness, known as COVID-19. Globally, there have now been 4.8M infections and 318,000 deaths (6.6%). In the US, there have been 1.5M infections and 90,000 deaths (6%).

For physicians, scientists, leaders - this virus has continued to humble us – there is much we don't know about this new virus.

Aging population

Seniors are at increased risk, due to the Inexorable waning of the immune system – something call immunosenescence. It is not only their age that renders seniors less able to mount protective responses to microbial threats. It is also the chronic health

conditions that are present more frequently in aging persons: for example, cancer, immunosuppression, chronic heart, lung, and kidney diseases, and diabetes.

The highest risk for critical disease is seen in the frail elderly, e.g., those residing in long-term care facilities.

According to the CDC, 8 out of 10 deaths reported in the US have been in adults 65 years of age and older. The nurses and doctors I have worked with are incredibly dedicated and caring, but they have not had the medical countermeasures needed to effectively help many vulnerable seniors who have died of this disease.

Nursing homes

It has been observed that certain work or residential settings with less effective social distancing, e.g., long-term care facilities, prisons, factories, have had the worst outbreaks of COVID-19. It has been reported that while just 11% of COVID-19 infections in the US have occurred in nursing homes, one-third of COVID-19 deaths in the US have occurred in nursing homes.

Medical Countermeasures

Non-pharmaceutical interventions continue to be our main weapons to fight the virus. Social distancing, closures, hand washing, quarantine, isolation. These are effective and provide a benefit to society and individuals by reducing spread of the virus.

However, they come with a cost to the economy. There is another category of interventions that are emerging: the Medical Countermeasures.

Vaccines

A vaccine holds out the promise of immune-protection: that is, producing within our bodies an immunity that will protect us against the virus in some future exposure.

Vaccines have always been our most effective means to combat infectious diseases that threaten human health. Just two days ago the first early report of a COVID-19 vaccine appeared, and it was promising. Seniors will be included in upcoming large scale efficacy trials.

Monoclonal antibodies

However, the elderly do not respond as well as younger adults to vaccines, so the approach of providing a monoclonal antibody as a pre-formed drug for treatment or prevention in the elderly is one that is attractive. One effort is underway to move as quickly as possible with a randomized controlled trial of a monoclonal antibody for nursing home residents and staff.

Treatments – remdesivir

The highest quality of medical research evidence comes from such randomized controlled trials. They provide the answer: does the candidate treatment work? For one antiviral drug, remdesivir, preliminary information from a randomized controlled trial of remdesivir versus placebo in hospitalized COVID-19 patients revealed a modest benefit, a 31% reduction in time to recovery.

Testing

Continued and increased testing provides benefit: it allows us to identify and isolate those with infection until they recover and thereby reduces further spread of the virus.

The more we test, the more we can fight the virus.

The future

The non-pharmaceutical interventions we have deployed against the virus, have been highly beneficial. And this remains doubly important for our vulnerable seniors, as we await further development of medical countermeasures. Medical countermeasures may need to be tailored to seniors in order to optimally protect them.