

COVID-19 Pandemic – Impact On Elderly and Is There a Gender Bias?

Severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) pandemic has adversely impacted the elderly population worldwide in various ways, creating unprecedented fear, uncertainty, anxiety, worry, and despair. The emerging worldwide data have established that the highest risk of severe illness of COVID-19 infection increases with advancing age, older people, men more than women. Factors such as aging compromised immune system, vulnerability to infections and viruses, decreased body and metabolic reserves, and multiple associated comorbidities contribute to increased risk of COVID-19 diseases.

AGE AND COMORBIDITIES

The disease tends to be more severe, aggressive, and unpredictable in the case of the elderly resulting in higher morbidity and mortality. A meta-analysis of 46,248 participants showed that the most prevalent comorbidities among COVID-19-positive hospitalized patients were hypertension (17 ± 7 , 95% confidence interval [CI] 14%–22%), diabetes (8 ± 6 , 95% CI 6%–11%), cardiovascular disease (CVD; 5 ± 4 , 95% CI 4%–7%), and respiratory system disease (2 ± 0 , 95% CI 1%–3%).^[1] Further, a study established that the presence of these comorbidities might have increased the risk of mortality independent of COVID-19 infection.^[2] The most common symptoms reported are fever, followed by cough and sputum in the elderly population. Pneumonia Severity Index (PSI) score of the elderly group is higher than that of the young and middle-aged group. The number of patients with PSI grades IV and V is significantly higher in the elderly than in the young and middle-aged groups. The ratio of multiple lobe lung involvement in the elderly group is higher than that of young and middle-aged groups.^[3] Eight out of ten COVID-19-related deaths reported in the United States have been among adults aged 65 and older. In a study from Italy, case fatality rate due to COVID-19 has been reported to range between 3.6% to 20.2% in comparison to 3.5% to 14.8% in China in the age group of 60–80 years, which is far higher than the worldwide reported case fatality rate (2.3%).

GENDER BIAS

As per the India data from the Indian Council of Medical Research, the COVID infection attack rate (per million) by age was highest among those aged 50–69 years (63.3%) and was higher among males (41.6%) than females (24.3%).^[4] In another study of 44,672 individuals with confirmed COVID-19 in



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Wuhan, the death rate among men was 2.8% compared to 1.7% among women.^[5] Likewise, Italy's case fatality rate as of mid-March 2020, according to the country's national health institute, was 10.6% in men compared to 6% in women.^[5] 60% of deaths from COVID-19 are reported in men,^[6] and a cohort study of 17 million adults in England reported a strong association between male sex and risk of death from COVID-19 (hazard ratio 1.59, 95% confidence interval 1.53–1.65).^[7] Similar data from Korea^[8] reports 61.1% of in-hospital deaths were male. The data indicate a gender bias, with the males being more vulnerable in acquiring the infection and having higher mortality rates. It is not surprising, since earlier data on the outcome of infections in males and females have shown a differential immune response to infection.^[9] The reasons for the higher male sex-specific COVID-19-related mortality may be due to differences in lifestyle (e.g., higher rates of tobacco smoking and alcohol consumption) and innate immunity. Hepatitis A and tuberculosis are more prevalent in men compared with women, and the viral loads of hepatitis C virus (HCV) and human immunodeficiency virus (HIV) are consistently higher in male patients with HIV.^[10] A more robust immune response to vaccines is seen in women.^[11] Women mount a more robust humoral and cellular immune responses to control infectious agents. Estrogen is known to act as an anti-inflammatory in its effect on cardiovascular and bone health.^[12] Takahashi *et al.* summarized that critical differences exist in the baseline immune capabilities in men and women during the early phase of SARS-COV-2 infection. They suggest a potential immunological underpinning of the distinct mechanisms of disease progression between sexes. Their data also provide a possible basis for taking sex-dependent approaches to prognosis, prevention, care, and therapy for a patient with COVID-19.^[13] Interestingly, two clinical trials are underway to examine whether short-term treatment of male COVID-19-positive patients with an estrogen patch (NCT04359329) or progesterone (NCT04365127) favorably modulate immune system responses and limit symptoms to SARS-Cov-2 infection.

DEALING WITH COVID-19

The uncertainty of COVID-19 may exist for many months. Various scientific bodies such as CDC, WHO, UNICEF, and MOHFW, Government of India,^[14-16] have issued advisories for the elderly population in dealing with COVID-19 pandemic. The main thrust remains on hand hygiene, wearing a mask, shield when interacting, “social distancing” (individuals in public remaining at least 6 feet apart), “shelter in place” (staying at home except for essential activities). Limiting or eliminating social gatherings, like going to crowded places like parks, markets, and religious sites, or unnecessary outside visit, limit contact with family members outside for work or job, avoid commonly touched surfaces, or shared items. Encourage to remain physically active and practice healthy habits to cope with stress and anxiety by measures like meditation, worship, yoga, etc., spend their leisure time watching movies, listening to music, read books of their choice. Importantly continue prescribed medicines and to keep medication in stock, to be in touch with their health care provider and know COVID-19 symptoms, and seek timely advice if they experience any such symptoms. Further, ensure proper nutrition through home-cooked fresh hot meals, hydrate frequently, and take fresh juices to boost immunity. Postpone elective surgeries and routine medical visits to the hospitals and OPDs seek tele-consultations and remain in touch with their health care provider. The essential treatment for managing comorbidities and cancer therapies should not be delayed or postponed. Healthy women on hormone therapy for contraception, menopausal problems, or abnormal uterine bleeding may continue to do so.

The social isolation, loneliness, and change of routine as well as impact of quarantine among elderly due to COVID-19 pandemic may have huge psychological and social impact beside physical impact which is very difficult to quantify. However, a study has reported long-term negative impact on health outcomes in the elderly which include negative psychological effects, including increase incidence of posttraumatic stress symptoms, confusion, anxiety, loneliness, depression, mood disorders, aggression, and anger. Further, it can heighten the risk of cardiovascular, autoimmune, neurocognitive, and mental health problems.^[17] Beside this, there can be a negative impact of quarantine on elderly population in the form of increasing sarcopenia, dependence, risk of falls, loss of disease control which need extra health-care attention by the health-care providers.^[18] People living in low-income and crowded households are dealing with increased stress during social restriction.

Thus, besides following the above recommendations, it is our collective moral responsibility and duty to provide family, community, social, and physiological support to the elderly population in this challenging time. The government need to ensure that hospitalization and cost of treatment due to COVID particularly by elderly population be brought under the ambit of the current government as well as private medical insurance schemes. Practice social distancing but not social isolation in families, help the elderly stay connected, feel involved, purposeful, and less lonely. Family need, to make elderly learn using internet, social Apps such as facebook, twitter, whatsapp, net-banking, online payments, and booking cab to meet daily needs and remain socially connected and active during pandemic. Postpone their unnecessary medical visits, and facilitate telemedical consultations to ensure their medical compliance of non-COVID-19 disease control during the pandemic. Ensure adherence to their pharmacological treatments and access to nutritious food, social and mental health support, timely release of their pensions, and family pensions. Empower them with information on COVID-19 to maintain their emotional well-being and overall health. The pandemic is leaving many scars, yet we believe we can learn great human lessons. Stay safe.

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