Face masks and falls

John Hugh Thwaites, Julia Frances Thwaites

Over the past 20 months, many New Zealanders have been wearing face masks to reduce the transmission of COVID-19. Masks are thought to be beneficial in terms of reducing the chance of transmitting respiratory borne viruses including COVID-19. Most people have been wearing standardised surgical masks, although many have opted for personalised cloth masks for comfort and fashion. However there have been reports on the difficulty of wearing masks due to adverse skin reactions, and the challenges of communication for those with hearing loss. Also of concern is the increased risk of falls and injuries due to obscuration of inferior peripheral vision caused by face masks and mask-related fogging of glasses.

We present two patients admitted with significant injuries due to falls resulting from wearing masks.

Case reports

The first patient was a 91-year-old woman who fell down two steps while adjusting flowers on a church altar. She attributed her fall solely to her face mask impairing her inferior vision, as she was unable to view the steps. Her vision and cognition were normal, and she did not wear glasses except for reading. She had no other significant past medical history or disability. She mobilised independently and had no previous history of falls.

She sustained multiple facial fractures involving the maxillary sinuses, a displaced fracture of the floor of the left orbit, and a displaced fracture of the medial left pterygoid process. She also sustained fractures of her left distal radius and middle finger. She was assessed by the maxillofacial and orthopaedic teams as not requiring surgery, but rather a cast for her forearm. She was transferred to a rehabilitation hospital where she made a slow but uneventful recovery.

The second patient was a 74-year-old woman who tripped over a small concrete bollard whilst shopping. She attributed this entirely due to her inferior vision being obscured by her face mask, which had migrated proximally over her glasses with concomitant fogging of the lenses. Her glasses were standard single vision lenses. She sustained a right patella fracture and a left radial fracture, both requiring surgery. She had multiple underlying co-morbidities including rheumatoid arthritis, Sjögren's syndrome, and pulmonary amyloidosis and hemochromatosis; however, she was independently mobile and had no previous history of falls. She had a slow but uncomplicated recovery.

Discussion

Wearing face masks is important during the current COVID-19 pandemic, especially for those at higher risk of infection. Face masks, however, may increase the risk of falls and injuries through impairing inferior vision, which can be further exacerbated by mask-associated fogging of the lenses when wearing glasses. In the two cases presented, both patients attributed their falls to impaired vision from their face masks, and in one case this was exacerbated by associated fogging of the lenses of her glasses.

People with impaired peripheral vision have an increased risk of falls and falls with injury. This is concerning for older people already at increased risk of falls and injuries from falls.

Vision and the ability to respond to visual cues are important factors that aid individuals in avoiding falls and falls with injury. Deficits in both central and peripheral vision can produce incorrect sensory inputs through misjudgments of distances and/or misinterpretations of spatial information.

Multifocal lens glasses designed with progressive lenses, as opposed to two separate single lenses, can impair depth perception, and therefore cause impairment in detecting obstacles and are associated with increased risk of falls. However this did not apply, as our one patient wearing glasses was wearing single lens glasses.

While falls in older people are commonly multifactorial, in these two cases both patients clearly attribute the falls to wearing face masks, and no other obvious, clinical cause for their falls was found.

Strategies to reduce the risks of falls with face masks include: advising older people of the poten-
tl risk of falls and injuries with face masks; ensuring a tight fit of the face mask to reduce any obstruction to vision and to reduce the likelihood of glasses fogging up; if wearing glasses, washing the lenses in soapy water before using a mask to reduce mask-related fogging; advising people to take their time before starting their walk, and to walk more slowly to allow more time to detect upcoming trip hazards and to plan a safe route.

However, more research is required to explore and determine the risks of falls and injuries associated with face masks, particularly in older people during this pandemic, and to evaluate strategies to reduce such risk during these challenging times.
COMPETING INTERESTS
Nil.

AUTHOR INFORMATION
Julia Frances Thwaites: University of Otago, Christchurch School of Medicine, Christchurch.

CORRESPONDING AUTHOR
John Hugh Thwaites: Consultant Physician, Older Persons Health, Canterbury District Health Board, Christchurch. john.thwaites@cdhb.health.nz

URL

REFERENCES