Letter to the Editor

Covid-19 in dementia: an insidious pandemic

Sir,

Older age is a key risk factor for worse outcomes in coronavirus disease 2019 (Covid-19) [1]. With a national prevalence of 13.9% among those aged ≥ 71 [2], a diagnosis of dementia in an already vulnerable population may have implications on the assessment and management of this acute infection. Our study aims to describe the clinical course of hospitalised patients with dementia and Covid-19.

We identified 36 consecutive Covid-19 patients with dementia admitted at the Hoboken University Medical Center from 16 March to 11 April 2020. Covid-19 was confirmed in all patients using quantitative real time reverse transcription polymerase chain reaction for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) RNA. The diagnosis of dementia was based on the clinical assessment in the hospital chart or documents provided by the long-term care facility or emergency medical services.

Patient demographic and clinical information were extracted, and the data from the first 24 h of admission were used to determine clinical severity based on WHO guidelines [3]. Patients with critical disease were those who developed acute respiratory distress syndrome, septic shock or multiorgan failure, or those who required mechanical ventilation or ICU admission.

The median age of the 36 Covid-19 patients with dementia was 84 years (range 59–97), and 22 (61.1%) were female. Eleven (30.6%) patients with dementia presented with critical Covid-19. Thirty-five of the patients (97.2%) were unable to provide a clinical history (Table 1); 26 patients (72.2%) came from a nursing home. The most common chief complaints offered by the historian were shortness of breath (61.1%), altered mental status (16.7%), fever (11.1%) and fall (5.5%).

Table 1. Clinical history and characteristics of Covid-19 patients with dementia

Clinical characteristics of patients with dementia	*n*(%)
Number of patients	36
Age, median (range)	84 (59-97)
Sex	
Male	14 (38.9%)
Female	22 (61.1%)
History provided by a relative or nursing home document	35 (97.2%)
Residence	24 (66.7%)
Nursing home	26 (72.2%)
Home	10 (27.8%)
Unknown duration of illness	21 (58.3%)
Clinical severity on admission[a]	
Mild	8 (22.2%)
Severe	17 (47.2%)
Critical	11 (30.6%)
Chief complaint	
Shortness of breath	22 (61.1%)
Altered mental status	6 (16.7%)
Fever	4 (11.1%)
Fall	2 (5.5%)
Weakness	1 (2.8%)
Anorexia	1 (2.8%)
Presenting symptoms	
Dyspnea	23 (63.9%)

(Continue)

Table 1. Continued

Clinical characteristics of patients with dementia	*n*(%)
Altered mental status	9 (25.0%)
Fever	15 (41.7%)
Cough	12 (33.3%)
Fatigue	7 (19.4%)
Rhinorrhea	2 (3.0%)
GI symptoms	3 (8.3%)
Comorbidities	
Hypertension	28 (77.8%)
Diabetes mellitus 2	19 (52.8%)
Heart disease	8 (22.2%)
Stroke	2 (5.6%)
COPD	3 (8.3%)
Bronchial asthma	3 (8.3%)
Maintenance medications for dementia	
Memantine	16 (44.4%)
Cholinesterase inhibitor	13 (36.1%)
Divalproex	7 (19.4%)
Vital signs on admission, median (IQR)	
Temperature (Celsius)	37.9 (37.2– 38.8)
Respiratory rate	22 (20– 26.8)
MAP	67.5 (59.8– 79)
Heart rate	108.5 (96.3– 120.3)S
SpO2 on room air (%)	86 (83– 94)
Highest oxygen support on admission	
Invasive mechanical ventilation	4 (11.1%)
Non-invasive mechanical ventilation	0
Non-rebreather mask	15 (41.7%)
Face mask	1 (2.8%)
High flow nasal cannula	2 (5.6%)
Nasal cannula	11 (30.6%)
Room air	3 (8.3%)
Clinical outcomes	
Discharged to home/nursing home	5 (13.9%)
In-hospital mortality	22 (61.1%)
ICU admission	8 (22.2%)
Still admitted as of 04/21/2020	3 (8.3%)
DNR or DNI status	24 (66.7%)

ªPatients with critical disease were those who developed acute respiratory distress syndrome, septic shock or multiorgan failure, or those who required mechanical ventilation or ICU admission. Patients were classified as having severe disease if their oxygen saturation was 93% and below when measured by pulse oximetry or if their respiratory rate was 30 breaths per min or higher without meeting any of the criteria for critical disease. Mild pneumonia was diagnosed in patients with an oxygen saturation on room air of 94% and above when measured by pulse oximetry and a respiratory frequency of less than 30 breaths per min without meeting any of the criteria for severe or critical disease. DNR, do not resuscitate; DNI, do not intubate.

On admission, patients presented with a median mean arterial pressure (MAP) of 67.5 mmHg (59.8-79.0) and a median oxygen saturation on room air of 86% (83–94%). Advanced directives determined either by family decisions or long-term care facility documentation were noted in 24 (66.7%) patients. There were 22 (61.1%) deaths among the patients.

We provide a detailed history of patients of older age with dementia who developed Covid-19. While in large cohorts, fever and cough are the most common presenting symptoms among Covid-19 patients [1], our findings show that dyspnea and altered mental status may manifest as the prominent symptoms of Covid-19 among patients of older age with dementia. Predisposition towards delirium may increase the risk of further cognitive impairment [4].

We noted a remarkable void in this population's medical history. As the majority of this cohort was unable to provide their own history in the emergency department, it is possible that caretakers were not made aware of their patients' subjective complaints at home. The large proportion of patients with an unknown duration of illness prior to presentation underscores the challenges in establishing the details of Covid-19 in this population. This unknown highlights the importance of including Covid-19 in the differential for patients with dementia presenting with a myriad of respiratory and non-respiratory symptoms. Notably, dyspnea and a remarkably low oxygen saturation and MAP on admission are suggestive of a pneumonia that lasted for several days [1].

Balancing aggressive management of an acute infection and the need for comfort care is crucial in this population. Thus, the interpretation of clinical outcomes, such as mortality and ICU admission, must be evaluated with caution. What is definite, however, is the unprecedented need to open

discussions with families about the merits of either curative or palliative measures of care.

Jasper Seth Yao[1], Edward Christopher Dee[2], Carmelo Milazzo[1],
Jerry Jurado[1], Joseph Alexander Paguio[1]

[1]*Hoboken University Medical Center, Hoboken, NJ 07030, USA*
[2]*Harvard Medical School, Boston, MA, USA*
Address correspondence to: Jasper Seth Yao.
Tel: +639175369876 or +63287277619.
Email: yao.seth@gmail.com

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